

AD-A273 990

THE COMBAT LOGISTICS FORCE:
SUSTAINING AN ARMY AIRBORNE BRIGADE CONTINGENCY OPERATION
IN AN UNDEVELOPED THEATER

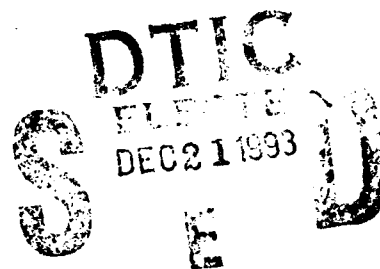
A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ARTS AND SCIENCE

by

ANTHONY E. MITCHELL, LCDR, USN
B.S., Salem State College, Salem, Massachusetts, 1980

Fort Leavenworth, Kansas
1993



Approved for public release; distribution is unlimited.

93 12 21 1 17

93-30781



| REPORT DOCUMENTATION PAGE | | | Form Approved OMB No. 0704-0188 | |
|--|---|---|---|--|
| Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503. | | | | |
| 1. AGENCY USE ONLY (Leave blank) | 2. REPORT DATE 5 June 1993 | 3. REPORT TYPE AND DATES COVERED Master's Thesis 1 Aug 92-5 Jun 93 | | |
| 4. TITLE AND SUBTITLE The Combat Logistics Force: Sustaining an Army Airborne Brigade Contingency Operation in an Undeveloped Theater | | | 5. FUNDING NUMBERS | |
| 6. AUTHOR(S) LCDR Anthony E. Mitchell, USN | | | | |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD Ft. Leavenworth, KS 66027-6900 | | | 8. PERFORMING ORGANIZATION REPORT NUMBER | |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) | | | 10. SPONSORING/MONITORING AGENCY REPORT NUMBER | |
| 11. SUPPLEMENTARY NOTES | | | | |
| 12a. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution is unlimited | | | 12b. DISTRIBUTION CODE | |
| 13. ABSTRACT (Maximum 200 words) This study investigates the possible employment of the Navy's Combat Logistics Force to sustain an Army airborne brigade conducting a contingency operation in an undeveloped theater. This discussion focuses on modifying a Navy replenishment oiler (AOR) to enhance it's capability to perform a sustainment role for an Army airborne brigade; the AOR's peacetime mission will remain providing fuel to the fleet. During the initial stages of a contingency operation in an undeveloped theater, the lead airborne brigade relies exclusively on airdrop resupply of essential sustainment items after their initial 48 hour basic load has been exhausted. Army doctrine suggests using host nation support to augment air delivered resupply and medical evacuations until required infrastructure is established. Shortfalls to this logistics doctrine have been observed during both Operation Urgent Fury in Grenada, and Operation Provide Comfort in Somalia. This study explains the shortfalls experienced by the lead brigade conducting a contingency operation in an undeveloped theater. The analysis addresses the need for joint sustainment doctrine and provides the planner with a viable option for on-call logistics support to an undeveloped theater using assets already in the U.S. Navy inventory. | | | | |
| 14. SUBJECT TERMS Sustainment, Airborne Brigade, Navy, Combat Logistics Force, Army Supply | | | 15. NUMBER OF PAGES 121 | |
| | | | 16. PRICE CODE | |
| 17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED | 18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED | 19. SECURITY CLASSIFICATION OF ABSTRACT UNCLASSIFIED | 20. LIMITATION OF ABSTRACT | |

THE COMBAT LOGISTICS FORCE:
SUSTAINING AN ARMY AIRBORNE BRIGADE CONTINGENCY OPERATION
IN AN UNDEVELOPED THEATER

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ARTS AND SCIENCE

by

ANTHONY E. MITCHELL, LCDR, USN
B.S., Salem State College, Salem, Massachusetts, 1980

Fort Leavenworth, Kansas
1993

Approved for public release; distribution is unlimited.

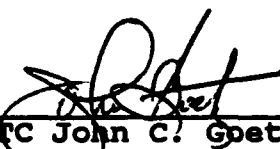
MASTER OF MILITARY ARTS AND SCIENCE

THESIS APPROVAL PAGE

Name of candidate: Lieutenant Commander Anthony E. Mitchell

Title of thesis: The Combat Logistics Force: Sustaining an Army Airborne Brigade Contingency Operation in an Undeveloped Theater.

Approved by:


LTC John C. Goetz, M.S., Thesis Committee Chairman


Rebecca M. Campbell, Ph.D., Member


CDR Chris M. Handley, M.B.A., Member

DTIC QUALITY INSPECTED 3

Accepted this 4th day of June 1993 by:


Philip J. Brookes, Ph.D., Director, Graduate Degree Programs

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U. S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

| | |
|--------------------------------------|--|
| Accession For | |
| NTIS | CRA&I <input checked="checked" type="checkbox"/> |
| DTIC | TAB <input type="checkbox"/> |
| Unannounced <input type="checkbox"/> | |
| Justification | |
| By | |
| Distribution / | |
| Availability Codes | |
| Dist | Avail and/or Special |
| A-1 | |

ABSTRACT

THE COMBAT LOGISTICS FORCE: SUSTAINING AN ARMY AIRBORNE
BRIGADE CONTINGENCY OPERATION IN AN UNDEVELOPED THEATER
by LCDR Anthony E. Mitchell, USN, 114 pages.

This study investigates the possible employment of the Navy's Combat Logistics Force to sustain an Army airborne brigade conducting a contingency operation in an undeveloped theater. The discussion focuses on modifying a Navy replenishment oiler (AOR) to enhance it's capability to perform a sustainment role for an Army airborne brigade; the AOR's peacetime mission will remain providing fuel to the fleet.

During the initial stages of a contingency operation in an undeveloped theater, the lead airborne brigade relies exclusively on airdrop resupply of essential sustainment items after their initial 48 hour basic load has been exhausted. Army doctrine suggests using host nation support to augment air delivered resupply and medical evacuations until required infrastructure is established. Shortfalls to this logistics doctrine have been observed during both *Operation Urgent Fury in Grenada*, and *Operation Provide Comfort in Somalia*.

This study explains the shortfalls experienced by the lead brigade conducting a contingency operation in an undeveloped theater. The analysis addresses the need for joint sustainment doctrine and provides the planner with a viable option for on-call logistics support to an undeveloped theater using assets already in the U.S. Navy inventory.

TABLE OF CONTENTS

| | |
|---|-----|
| THESIS APPROVAL PAGE..... | ii |
| ABSTRACT..... | iii |
| TABLE OF CONTENTS..... | v |
| LIST OF ILLUSTRATIONS..... | vi |
| CHAPTER | |
| 1. INTRODUCTION..... | 1 |
| 2. REVIEW OF THE LITERATURE..... | 12 |
| 3. RESEARCH METHODOLOGY..... | 50 |
| 4. PRESENTATION AND ANALYSIS OF THE DATA..... | 54 |
| 5. CONCLUSIONS AND RECOMMENDATIONS..... | 90 |
| BIBLIOGRAPHY..... | 107 |
| INITIAL DISTRIBUTION LIST..... | 114 |

Dedicated to the memory of
Craig McLean

LIST OF ILLUSTRATIONS

| Figure | Page |
|---|------|
| 1. Supply Categories for Support Planning..... | 40 |
| 2. Map of Homeport Mayport Florida..... | 78 |
| 3. Map of Homeport Napels, Italy..... | 79 |
| 4. Map of Homeport Sasebo, Japan or Guam, MI..... | 80 |

CHAPTER ONE

INTRODUCTION

This thesis will address the question: "Can the Navy's Combat Logistics Force (CLF) be employed to extend the sustainment of a U.S. Army airborne brigade contingency operation in an undeveloped theater beyond the traditional 48 hours?" The question is extremely important today because of the shaping of the military toward non-traditional roles, operations other than war, and contingency operations, all undertaken in an environment of budget reductions. The disintegration of the former Soviet Union has created a twofold change in the international arena. First, a superpower confrontation has become unlikely, and second, the world stability which was the result of bipolar powers, is rapidly eroding. The United States must remain capable of responding to regional threats and instability which threaten it's vital interests while maintaining a force structure that will harmonize the fiscal realities facing the nation.

This study does not propose replacement of any current contingency forces, but provides a supplement to U.S. Marine Corps capabilities and prepositioned sealift

assets. The focus of military planning, military education, and doctrine is rapidly shifting toward contingency operations and other non-traditional roles which include low intensity conflicts, humanitarian relief operations, peace making and peace keeping operations, et al.

With the Soviet nemesis gone, the United States military's future role is being shaped largely by its ability to conduct limited police actions...The Somalia relief operation comes at a crucial moment for military leaders, who know they must break free from more than 40 years of Cold War thinking. . . .¹

The United States military is reducing it's forward deployed forces and overseas facilities based on a national military strategy which has shifted from forward deployed forces to forward presence. The result is a greater reliance on Continental United States (CONUS) based forces in rapid deployment organizations. The obvious ramification of a heavy reliance on a power projection Army organized into rapid deployment airborne forces for contingency operations is the significant increase in requirements for strategic lift assets to deploy forces, build combat power with follow-on deployments, and logistically sustain the deployed forces. With reduced overseas facilities, the logistics tail to sustain deployed forces could conceivably extend globally. The present reliance on air delivery for logistic sustainment of contingency operations necessitates extensive expansion of our existing strategic airlift

capability to include aerial refueling assets or, shifting some of the burden of strategic transportation and sustainment to a dedicated surface ship specifically configured for the mission of sustaining and supporting Army forces in a contingency operation.

U.S. Army contingency operations demand a quickly deployable yet powerful force with both forced entry capability and staying power. At present, the XVIII Airborne Corps mission supports this requirement. General Luck, the former commander of both the XVIII Airborne Corps and the 82nd Airborne Division describes the force and mission as: "A strategic crisis response force manned and trained to deploy rapidly by air, sea and land anywhere in the world , and prepare [sic] to fight on arrival and win."²

Light forces which include airborne forces of the XVIII Airborne Corps (the Army element of the crisis/contingency force) have an organic sustainment capability of approximately 48 hours without aerial or ground resupply.³ Planners recognize the constraints and limitations imposed by the Joint Strategic Capabilities Plan (JSCP) on a finite number of airlift and sealift assets. The short time frame between the decision to conduct and execute a contingency operation further constrains the availability of lift assets.⁴ These constraints are basic characteristics of Army airborne contingency operations.

An airborne force used in a contingency operation needs, at a minimum, class I (food and potable water), III (Petroleum oil and lubricants), V (ammunition), and VIII (medical materiel) support beyond organic capabilities. The contingency operation should also be supported by a proximate medical facility available within 48 to 72 hours of commencing operations in theater. Air landed logistics and a host nation infrastructure in a developed theater negates many sustainment concerns, but the lack of facilities and supplies in the undeveloped theater multiplies the potential for disasters resulting from unanticipated sustainment shortfalls.

Contingency operations, as presented in FM 100-15, have five phases: (1) predeployment/crisis action phase; (2) deployment/initial combat action or lodgment phase; (3) force buildup/combat operations or the stabilization phase; (4) decisive combat operations phase; (5) redeployment phase. Once forces are deployed in phase two, external resupply must be facilitated within 48 hours when basic loads are expected to be depleted.

Phase three requires extensive airlift and sealift assets to provide and support heavy follow-on forces for subsequent operations. There is a void in logistic support after the initial units, which were deployed in phase two, use up their 48 hour basic load and the completion of the

phase three buildup unless some means of aerial resupply is designated to fill the void.

The ability of the present force structure to sustain XVIII Airborne Corps' rapid deployment airborne units deployed to an undeveloped theater in a contingency operation while simultaneously building forces is questionable. Further, exclusive use of airlift sustainment of a brigade strength contingency operation in an austere theater is not logical in a fiscally restrained climate.

Emphasis on joint and combined operations to meet security challenges to the United States is evolving into doctrine. This change in operating procedures is recognized and is the basis for a September 1992 Navy White Paper, . . . From the Sea, which defines a new Navy vision for joint operations. It identifies sealift as an enduring mission, and the key to force sustainment for joint operations.⁵ The Navy has traditionally concentrated on deployment and sustainment of Marine forces and heavy joint forces. Sustainment of Army airborne contingency forces has lacked the political charisma to compete with support of heavy divisions until recently.

The Navy's Combat Logistics Force (CLF) has provided support for battlegroup operations world wide. The ability to replenish at sea while forward deployed distinguishes a global navy from a coastal force; the CLF is a key component

of the U.S. Navy's power projection and sea control strategy. Force reductions have necessitated the decommissioning of a number of CLF ships of the Replenishment Oiler (AOR) class. It is possible that these ships, with modification, could serve as airborne brigade sustainment ships and provide a peacetime function as a Navy fleet oiler.

Construction of a new class of ship specifically designed to perform the sustainment mission would be ideal; however, budget realities, balanced with force requirements dictate optimumizing existing defense assets. A dedicated airborne brigade sustainment ship is not the ready made solution for every contingency or crisis, but may give the joint planner an additional low-cost option when planning the essential sustainment of an Army airborne brigade contingency force in an undeveloped theater.

Problem Statement

The XVIII Corps is almost totally dependant upon US Air Force strategic airlift for sustainment of their airborne forces after 48 to 72 hours of operations. This study attempts to determine if the Navy's CLF can be employed to extend the sustainment of a U.S. Army airborne contingency operation in an undeveloped theater beyond the traditional 48 hours.

Sub-problems to be considered include the following:

(1) determine evacuation procedures for casualties when there is an absence of landing facilities and; (2) determine airlift/airdrop requirements to sustain an airborne brigade deployed to a contingency operation in an undeveloped theater.

Problem Study Issues

The following secondary questions are addressed:

(1) "What lessons learned from past contingency operations and base resupply operations involving CLF ships can be applied to form joint sustainment doctrine?"; (2) "What will be the ship's configuration and pre determined load?"; (3) "Taking into account the characteristics of Army contingency operations in an undeveloped theater, which scenarios will be suitable to employ Navy CLF support for sustainment?"; (4) "Can the CLF sustainment ship provide field services to the contingency operation and if so, what personnel augmentation is required?"; (5) "Is it necessary to homeport the sustainment ship taking into account desired geographic coverage for the concept to be viable?"

Significance of the Research

Impressions from Army field manuals and warfighting articles addressing CSS in contingency operations appear to assume away problems through reference to operation Desert

Storm or, asserting that the operation will have no limitations, effortlessly following the phases presented in FM 100-15. Chapters four and five will address these dangerous assumptions in depth. Specific airborne brigade and CLF sustainment requirements will be identified and an analysis will be provided in chapter four.

Chapter four will also provide a general concept scenario using an AOR class CLF ship to support an airborne brigade deployed to a contingency operation in an undeveloped theater. Conclusions, results, and recommendations for CLF employment in Army airborne contingency operations in an undeveloped theater will complete the study in chapter five.

The retrenchment of the military to a CONUS based, power projection force demands an effective, independent, and inexpensive sustainment capability. Worldwide pre-positioning of sustainment packages and equipment must be superseded by economy of force options that do not decrease the capacity for a fast military response when dictated. The challenge to the joint planner remains how to maintain maximum readiness and power projection capability at the lowest possible cost in a peacetime environment.

Limitations

In summary, this study is limited as follows:

- (1) It will address only airborne forces of the XVIII Airborne Corps (the XVIII Airborne Corps is comprised of the 82nd Airborne Division, the 101st Air Assault Division, the 10th Mountain Division, and the 24th Infantry Division).
- 2) It will focus on contingency operations in an undeveloped theater; 3) It will focus on the Replenishment Oiler (AOR) class ships only. Research was limited to unclassified material. The cut-off date for information contained in this thesis is March 1993.

Assumptions and Delimitations

Although the present force structure of the U.S. Army is undergoing extraordinary changes and reductions, the responsibility for providing rapid deployment Army forces to protect the citizens and vital interests of the United States will remain with the XVIII Airborne Corps. This study will not address contingency operations involving other U.S. Army forces or Marine Corps forces since their sustainment during contingency operations is provided by large pre-positioned sealift assets.

Ships of the Navy's amphibious force are not addressed because of their dedicated support of the U.S. Marine Corps mission. Additionally, the study will not use

examples from Operation Desert Storm because the theater infrastructure was well developed when forces of the Eighty-Second Airborne Division were deployed.

Objective of the Study

In a period of shrinking defense appropriations and smaller force structure, existing assets must be re-evaluated and modified to meet the uncertainty of contingency operations yet be capable of fulfilling a necessary peacetime mission at a reasonable cost.

Investigating the possibility of using existing U.S. Navy CLF assets to logistically support airborne units of the U.S. Army during certain contingency operations is aimed at solving a practical military problem effectively and inexpensively. The intent is to provide the planner with a viable option for on-call logistic support to Army airborne contingency forces in undeveloped theaters using assets that are already in the US Navy inventory.

Endnotes

1. "Small Wars to Shape U.S. Military," Baltimore Sun, 2 December 1992, p. 1.
2. Gary E. Luck, "The XVIII Airborne Corps Puttin' Power on the Ground," Military Review Vol. LXXII No. 4 (April 1992): 3.
3. U.S. Army, FM 71-100, Division Operations (Washington: Department of the Army, 1990), D-3.
4. Department of the Army, FM 100-15, Corps Operations (Washington, DC: Government Printing Office, September 1989), p. 8-0.
5. Navy and Marine Corps White paper, "... From the Sea, Preparing the Naval Service for the 21st Century," 1992, p. 9.

CHAPTER TWO

LITERATURE REVIEW

A review of the literature on the use of CLF assets for sustainment of an Army contingency operation has provided limited results. Considerable coverage on specified contingency doctrine and sustainment functions as well as lessons learned from prior Army and Navy operations, were available and were used in this study. Numerous sources relating to sealift assets providing general support contingency operations were also available and used.

A specific Army or joint sustainment doctrine for brigade size contingency operations in undeveloped theaters is not available. Application of the information related to the use of sealift and airlift in contingency operations required that association of Army doctrine and sustainment requirements with Navy capabilities be made. This association allowed the formulation of a general concept scenario for CLF employment to sustain an airborne contingency operation.

Army Contingency Operations

The January 1993 final draft of a new Army FM 100-5, Operations contains an extensive chapter on joint capabilities and missions. This reflects the Army's change from a forward defense to a power projection military strategy. Maritime operations and airlift and sealift both have dedicated sections. The Army's dependance upon both airlift and sealift for their power projection role is discussed.

FM 100-5 final draft highlights airlift's quick insertion capability and limited capability to move supplies and equipment. Power projection by sealift is listed only by amphibious operations and transport to port facilities in or near the theater of operations. The possibility of using Navy capabilities for air assault operations or, the type of sustainment options which will be examined here were neglected.

The final draft of FM 100-5 does show the complementary role shared between sealift and airlift. One significant point which is described and highlighted in the manual is the ability of operations at sea to be conducted without the prerequisite overflight clearances required to conduct airlift operations. The inherent ability for Naval forces to position themselves for optimum effectiveness in

rapidly unfolding operations has not been overlooked in this manual.

FM 100-15, Corps Operations dated 13 September 1989 is the standard guide for the employment of a U.S. Army corps in combat to include contingency operations. The potential to over-stress the Corps Combat Service Support (CSS) capabilities in a contingency operation is identified. The manual also identifies the possible need for the unified commander's Army planning agent to augment the corps with additional resources.

The planning and employment considerations for the Corps Contingency Operation in FM 100-15 is phased. The five phases of the contingency operations provides the planner with an understanding of the sequencing and force considerations when developing a sustainment package.

FM 100-15 is supported by an article focused on Army training and doctrine from the perspective of the commander of the XVIII Airborne Corps. In this article, "The XVIII Airborne Corps Puttin' Power on the Ground," (Military Review, April 1992), Lieutenant General Gary E. Luck identifies inter-theater airlift, sealift, and intra-theater lift as the three critical strategic mobility requirements for successful use of Army crisis response forces. The article uses the phasing of the contingency operation provided in FM 100-15 in a conceptional model, but

highlights the sustainment void which occurs between phases II and III of the phased operation. The relationship between the supported and supporting commanders in chief (CINC), and their analysis of combat power potential at each phase, is also examined.

The XVIII Airborne Corps' Airborne Division contingency forces are configured for rapid deployment in operations which are characteristically joint, complex, and plan linkup with follow-on forces.¹ A rapid deployment contingency force lead brigade is on the ground via airlift within four days of the first movement supporting an operations plan or operations order.² If force buildup is required in the contingency, the remaining elements of the lead division will be on the ground within twelve days of the first movement, and the lead corps will be within the theater within thirty days.³ All of these forces require airlift and sealift for their deployment, and sustainment commensurate with the size of the force and time in theater.

The term low-intensity conflict (LIC) has been superseded by and incorporated into the new nomenclature of "operations other than war"⁴ and "non-traditional roles".⁵ Many contingency operations remain as a subset of these overall categories.

The Joint Low-Intensity Conflict Project Final Report (Project Report) published in August 1986, is the LIC

and contingency operation capstone publication. The report criticized the nation's understanding of LIC. The military's lack in unity of effort responding to shortfalls in sustainment, and the overall poor execution of LIC was highlighted in the Project Report. Volume one of the Project Report identifies and groups LIC into four categories: insurgency/counterinsurgency, terrorism counteraction, peace-time contingency, and peacekeeping operations.⁶

The Executive Summary of the Project Report states that individual services lack procedures and doctrine to focus their efforts in the LIC. It further states that operational experience at all levels in the LIC environment proves that the existing doctrine is inadequate. The major point is that the armed services have amended doctrine for other types of operations to address the requirements of the LIC. The application of this amended doctrine have proven to be inadequate.

The Project Report indicated an inadequacy of LIC operational training, organization, and equipment along with a lack of programmatic and logistical support for forces conducting various LIC activities. U.S. contingency forces involved in low-intensity conflict are inadequately supported because the majority of sustainment efforts focus on the support of large combat formations on conventional

and nuclear battlefields. This is deemed insufficient for LIC and a new effort is required to fill the void.

The most serious problem identified in the Project Report was the exclusive focus of Departments of Defense, State, Justice, Treasury, and the National Security Council on the Soviet Threat to Europe at the expense of programs designed to combat LIC threats.⁷ For over forty years the National Security Strategy of the United States has given priority to the defense of Western Europe and the members of the North Atlantic Treaty Organization (NATO). Given this priority and the characteristics of the NATO theater, the U.S. force structure, strategic lift capability, and associated sustainment support is inadequate for contingency operations in undeveloped theaters.

Volume 1 of the Project Report accentuates the importance of logistics. It states that during Operation Urgent Fury (Grenada) no logisticians were involved in the planning at the Joint Chiefs of Staff level. However, during LIC, Combat Service Support (CSS) elements play a major role in supporting joint and combined operations and must be task-organized to support a variety of missions.

The Project Report identifies five basic issues in addressing logistic support to U.S. forces. The observations include CSS as the lead element in LIC, use of intelligence to support logistic functions, use of host

nation support (HNS) as an alternative or supplement in undeveloped theaters, the effect of inadequate joint logistics doctrine on logistics support to deployed forces, and the requirement for direct requisitioning for a Joint Task Force (JTF) operating for an extended period. The central theme in the Project Report is the need for joint logistics doctrine and policies.

By relating earlier operations to the identified deficiencies in doctrine and policies, the Project Report warns that planning logistics in a vacuum will result in critical shortages or vast oversupply. Strategy, tactics, and CSS in combat operations are inseparable.

Doctrine for Sustaining Army Contingency Operations

Army FM 100-10 (Combat Service Support), the capstone manual for sustainment, addresses the function of contingency operations in four paragraphs. It discusses the normal reliance on airlift of support packages that have been reduced to essential items. It further directs support elements to maximize their reliance on host nation support (HNS) and local resources. There is an existing requirement to provide minimum logistic support by efficient and economical means to airborne contingency forces after their 48 hours of self-sustainment is exhausted. Reliance on aerial resupply or HNS is not prudent because of the unpredictable conditions which cannot be anticipated for

every possible contingency or compensated for in a rapid deployment posture.

The importance of the synchronization and tailoring of the CSS package in the contingency operation is emphasized in Field Manual 71-100 (Division Operations) dated 16 June 1990. This manual applies contingency operation from Corps down to division and brigade planning levels. It supports the importance of CSS, augmentation and support requirements, and provides an augmentation matrix as a starting point for division planners to identify CSS and other division shortfalls when planning a contingency operation. The manual further relates the specific relationships of effective operations and effective CSS. Attempting to support an operation lasting more than forty eight hours, without external support, can have consequences which are intensified during contingency operations.

Field Manual 71-100 repeatedly stresses the need to apportion sufficient sustainment with a tailored package to meet theater-specific requirements in early planning stages. CSS elements must be task organized to support the lead brigade or separate brigade operations if the entire division does not deploy. The overall importance of sustainment and CSS in the contingency operation is emphasized more in this field manual than in many of the manuals dedicated to Army logistics.

The prominence of logistic support in peacekeeping operations, counterinsurgency operations, and peacetime contingency operations is well supported in Field Manual 100-20 (Military Operations in Low Intensity Conflict) dated 5 December 1990. The manual states:

Logistical requirements may dominate the mission and place extraordinary demands on support forces. The missions are likely to begin on short notice, under unique circumstances, and in austere environments. Typically, the numbers and types of available aircraft and ships will be limited. Planners must include comprehensive logistical support packages in peacetime contingency operations.⁸

It also provides some sobering realities regarding dependance on host nation support for logistics and the detriment or burden which this support may impose to the host nation and resources.

Support and sustainment of contingency operations is addressed at length in Army FM 63-2-1 (Division Support Command Light Infantry, Airborne, and Air Assault Divisions) dated 16 November 1992. This manual is the capstone for support and sustainment of all types of light division operations. It indicates that there must be flexibility in the logistics and health service support of light divisions, especially when a brigade-size task force operates apart from its parent division. The benefit of employment of a light or airborne force is flexibility. The flexible nature of any light force complicates the establishment of

doctrinal support requirements and thereby challenges the sustainer.

The Army presents a list of sustainment principles in FM 63-2-1 to address the special considerations for sustainment of a contingency operation or low-intensity conflict. These principles tie Army logistic characteristics of anticipation, integration, continuity, responsiveness, versatility, and improvisation⁹ to the contingency operation where planning requirements will be paramount.

Contingency phasing addressed in FM 100-15, is combined with support requirements under the framework of Army logistics characteristics in FM 63-2-1. The logistics characteristics framework serves to focus the concerns and responsibilities of the sustainer to the battlefield. Reduction of support to only essential items early in a contingency operation is the application of Army logistic characteristics necessitated by the reliance on airlift for initial deployment and sustainment.

Logistic essentials include food, water, ammunition, medical supplies, and fuel. All of these essentials are high bulk and low value items which are not cost effective to airlift. The high cost compounded by the critical shortage of airlift assets and space requirements for an operation emphasizes the need to solve the sustainment

problem. Consequently, Army planners have concentrated on the availability of, and reliance on, local support and local resources. The presumption that local resources will be available for a contingency operation in an undeveloped theater is cause for concern during the planning and execution of the contingency. The CINC is charged to conclude agreements for HNS for deployed U.S. forces. Most nations have traditionally provided what support was available but can not meet all requirements.

FM 63-2-1 indicates that the expected Army response to peacetime contingency operations is rapid deployment of combat units without adequate follow-on CSS. Lack of adequate assets, even if identified in past contingencies, lead to inadequate sustainment support. The doctrinal reliance and assumptions regarding HNS focuses on the Western Europe defense mentality. Additionally, the assumption in phase two of the contingency operation is that the lodgement area will usually contain port facilities, airfields, and other infrastructure suitable for sustaining subsequent combat operations. This assumption is the Achilles' heel of contingency operation sustainment planning.

FM 63-2-1 emphasizes the need to tailor the CSS package to the size, mission, and composition of the contingency force, (especially those CSS functions not

normally organic to, or considered when designing a light or airborne force). The deploying force enters the area of operations with it's basic load and additional accompanying supplies. The manual addresses the need for personnel to man the ports or airfields, and establish procedures to contract HNS; tactical airlift is mentioned only in the context of emergency resupply during phase two of the contingency. Medical companies are tasked to oversee the evacuation of casualties. Unit commanders are responsible for the evacuation of remains however, nowhere does the manual identify how or where these evacuations are to be conducted during phases two or three of a contingency operation.

Independent brigade operations are also addressed in FM 63-2-1. The sustainment function however, is addressed as if the entire division is in a position to support the brigade. No overview or outline for sustaining an independent brigade deployed for a contingency is provided. More importantly, the manual does not address the sustainment problems faced when the independent brigade is involved in a contingency in the third world austere environment, far from the continental United States (CONUS) parent division. The need for augmentation of the sustainment infrastructure for a contingency operation is repeatedly emphasized in this field manual.

Logistical doctrine was found to be flawed in contingency operations as far back as during the 1958 Operation Bluebat in Lebanon. The initial supply shortages incurred at the onset of the operation were substituted for an excessive oversupply of everything once the logistic tail was in place.¹⁰ Operation Urgent Fury in Grenada was also plagued by logistics oversights. The close proximity to the CONUS propelled planners into assuming away problems that could have been solved by tailoring the force structure. These are prime examples of historic shortfalls in contingency operation sustainment.

Our armed forces demonstrated the capability of deploying, fighting, and winning on short notice, but whether we are capable of repeating this success in a future no-plan operation is dubious. The lessons of Grenada suggest we are not thus [sic] capable, and that fighting commanders underestimated the critical importance of logistics in planning and conducting the operation.¹¹

Ammunition for light infantry units involved in Operation Just Cause (Panama) was delivered to forward locations by helicopter sling loads¹² from bases with extensive infrastructure. This logistic application exemplifies where the logistic characteristic of versatility solved a doctrinal deficiency.

FM 63-2-1 addresses contingency operations in detail but theorizes that most operations will be in a theater with a sufficient infrastructure to sustain combat operations and

that operations will be augmented by sea, air, and HNS as required. The field manual leaves two major issues inadequately addressed: (1) The approach to use in planning for a contingency operation in an undeveloped theater where facilities and infrastructure are austere at best and; (2) identifying options and procedures to support Army independent brigade task forces without follow-on forces per the doctrinal-based, phased operation presented in FM 100-15, Corps Operations.

Doctrinal omissions may unfold after an examination of Operation Provide Comfort is completed. Initial logistics planning in Somalia portrays a portion of the inadequate doctrine and ability to rapidly support combat forces in an undeveloped theater, and then to maintain a supply rate which does not create excesses. Joint sustainment doctrine targeted at contingency operations will rectify many historic problems. This joint doctrine coupled with the tone of the new FM 100-5 can support the proposals of this study.

Pre-positioned sealift ships were to provide common supplies and equipment for operation Provide Comfort. The embarked equipment and supplies in pre-positioned ships are not tailored to any specific unit. Thus, much of their cargo may not have been required for the light infantry. The ship and loaded equipment was however, assigned to

Operation Provide Comfort and was unavailable for other contingencies. Additionally, Seabee units and other support troops were dedicated for extensive construction projects which were estimated to take up to four weeks just to prepare the local infrastructure needed to handle ships, aircraft, and related equipment at the meager facilities which did exist.¹³

Participants in the Somali operation met no military resistance. This operation does not provide information about capabilities to rapidly support and sustain our forces in a similar theater conducting combat operations. Nor can it be used by military planners to establish a cost base for combat contingency sustainment. These concerns are being expressed by the Army as exemplified in an interview between an aide to General Ross, the Army Deputy Chief of Staff for Logistics, and an Associated Press reporter about the Somali operation:

[This is the first time we've deployed to a place where there's (sic) absolutely no infrastructure,] said Col. Roy Beauchamp, an aid to the Army's deputy chief of staff for logistics. [In this case, we've got to start with a blank page.]¹⁴

Existing doctrine supports the Army phased contingency operation through strategic airlift and strategic sealift to fulfill force buildup requirements. Specific doctrine for the use of deployable Navy assets to sustain an Army brigade or smaller force conducting a

contingency operation is not currently available and deserves investigation.

Planning and Transporting Required CSS

"Focusing Logistics for the Future," appeared in Military Review in September 1992. The author General Jimmy D. Ross is the Commander of the US Army Material Command and looks for a balance in the *strategic mobility triad* to support power projection strategy into the 21st century. General Ross stressed that the triad must be capable of supporting a diverse range of military options and sustain the total deployed force anywhere in the world. His answer to these requirements is to balance the strategic mobility assets with afloat pre-positioning and small pre-positioned material configured to unit sets (POMCUS) ashore (which are presently positioned throughout Europe) in many areas of the world.

General Ross points out that the most significant shortfall is fulfilling sealift requirements. However, he concludes that the Air Force's C-17 new generation cargo aircraft (presently under intense criticism and budget scrutiny) will meet all current airlift requirements. Doctrinal changes which reflect recent global instabilities could alter future airlift requirements and place unforeseen expectations on lift capability. His conclusion regarding

the C-17 is very optimistic; the article does not address operations in an undeveloped theater.

General Ross analyzes Operation Desert Storm experiences to support a larger fleet of pre-positioned afloat reserves. It also relates reserve component units assigned to contingency forces with the requirement for rapid power projection. General Ross recommends, "To the extent possible, any support unit required within the first 30 days to support contingency operations should be an active unit."¹⁵ This philosophy implies that a contingency force should be self sustaining for 30 days without reliance on large afloat pre-positioned sealift assets. If not, engineer and specialized CSS units must be increased in the active forces to facilitate the building and improving the substandard seaport and airport facilities expected in the undeveloped theater. Additionally, equipment needed to conduct logistics over the shore operations (LOTS) must be quickly available and the number of personnel increased in the remaining active boat units to support LOTS when port facilities are inadequate.

Admiral James Hogg, former U.S. Representative to the NATO Military Committee, writes in his article "Reinforcing Crisis Areas", that reception forces are required to be in place initially or will need to be quickly inserted into a host country to exploit the valuable

logistics flexibility of maritime pre-positioning ships used to support a campaign. One of the major factors which dictates the size of these reception forces is the condition of the existing infrastructure. Because of their role, the reception forces must arrive in theater prior to the start of the hostilities as their task of reception and onward movement of supplies and equipment is the key to operational maneuver.

Admiral Hogg addresses U.S. forces' total dependence on host nation support (HNS) to sustain combat capability in Europe. He concludes that civilian HNS in Europe is a reasonable option; however, he also considers associated problems that are part of the HNS package. The Admiral restricts his review of HNS to the NATO area of responsibility and Southwest Asia.

Admiral Hogg's article is the only literature found which includes and underscores the importance of early reception forces in theater. He emphasizes that logistics is a national responsibility and must be organized for coalition forces. While sustainment and logistics in a crisis operation is the article's focus, the overwhelming flavor is NATO coalition contingency operations which have traditionally been conducted in a developed theater.

When considering the Cold War national security strategy, it is apparent why the backbone of the Army's lift

is maritime. The hand-in-glove relationship required between airlift and sealift to orchestrate moving heavy Army divisions to Europe required the maximum optimization of available lift assets. When applying forces in a crisis response role, expediency adds an additional dimension to the planning considerations.

In his article "Sealift: The Achilles' Heel of our National Strategy" which appeared in the Marine Corps Gazette, November 1992, Major Mark L. Hayes provides a thorough study of airlift and sealift, including the pros and cons of both methods when used during crisis response. He concludes that airlift is the best and most expeditious method of delivering personnel to a theater of operations but is limited and not cost effective for cargo. Airlift, Major Hayes points out, quickly reaches a point of diminishing returns. He uses the example of U.S. airlift supporting Israel during the 1973 Yom Kippur war where six tons of aviation fuel were required to deliver each ton of cargo.

Because of the recognized limitations of airlift, defense planners anticipated sealift movement of up to 95% of the dry cargo and 99% of Petroleum, oil, and lubricants (POL) requirements for Operation Desert Storm. Major Hayes points out that identifying, training, and assembling crews required for sealift ships is a major shortfall which will

necessitate a period of lead time before our sealift can be fully employed.

Major Hayes, describes the Afloat Pre-Positioning Force (APF), its employment, categories, and capabilities. He identifies the major shortfalls of the APF discovered during Operation Desert Shield as being the types and quantities of embarked supplies, and the disappointing readiness levels of the equipment embarked on the ships. He attributes success in the deployment to Southwest Asia to available allied shipping, the ultra-modern and undamaged ports of Saudi Arabia, and to Saudi Arabian HNS providing the majority of potable water and POL to our forces. The last two factors mentioned were seen by Major Hayes as the critical oversight by planners and authors in the field of sustainment.

Major Hayes assesses that a total reliance on large roll-on, roll-off (RO/RO) ships based on our Desert Shield experience is alarming because of the fragile state of the current sealift system. He determines that there must be a reasonable balance between assault shipping and other types of surge sealift. According to the article, the issue of affordability has become a major consideration when attempting to solve the deficiencies in surge sealift. Appropriated funds for sealift research and development and shipbuilding have been transferred to fund the Panamanian

economic aid bill, M1 tanks, and military personnel accounts. Hayes further indicates that other appropriations were reduced to fulfill requirements of Graham-Rudman-Hollings Deficit Reduction Act.

The hand-in-glove relationship between sealift and contingency force deployment requires that the sealift system of the next decade be tailored with greater understanding and with better fit in mind.¹⁶

Major Hayes identifies the need for an economical answer to the balance of sealift and assault shipping for use in contingencies with varying port quality.

Sealift activation during Operation Desert Shield/Storm was not the panacea it is being portrayed as. It's cost and the quality of merchant mariners hired during Desert Shield/Storm was meticulously examined by Captain Baron C. Nelson, Commander of Task Force 63, responsible for Navy logistics in the Sixth Fleet (Mediterranean and Red Seas). In his white paper, "Combat Logistics Force Into the Twenty-First Century," He thoroughly describes the history of CLF employment and the after effects of transferring the CLF to the Military Sealift Command which is staffed by civilian merchant mariners. He also explores specific problems encountered with sealift ship crews during Desert Shield/Storm.

Captain Nelson strongly recommends that the Navy shift it's logistic focus from the product to the logistic

process. He provides an outline for support and sustainment for every known type of naval surface operation. He closes his paper indicating that short-term solutions to budget pressures (replacement of CLF ships with a reliance on civilian manned sustainment ships) will not even maintain the quality logistics at sea provided to date. According to Captain Nelson, sealift augmentation of the CLF should only be considered as a wartime option of last recourse.

The reluctance of a Navy logistics professional to outwardly promote civilian manned sealift ships to replace the CLF supports Major Hayes' conclusion regarding the lead time required to crew required shipping. Nelson takes the argument one step further by documenting the poor quality of mariners contracted and the turmoil caused by the mariners four month "sign-on" contracts.

Sustainment of contingency operations which are characterized by rapid power projection of a light or airborne force requires reliable sustainment able to react in unison with the combat force. Sealift, as it exists today, is not the answer; pre-positioned ships also have drawbacks. Logistics Over the Shore (LOTS) has been the answer to criticisms regarding the use of large sealift ships in the undeveloped theater.

In Logistics Over the Shore Do We Need It? Dan J. Beaky addresses over two decades of LOTS development by the

Army and Navy. Colonel Beakey begins with the identification of LOTS as the best method of unloading modern cargo ships when seaports are unavailable or damaged. He further identifies LOTS as a serious deficiency in military readiness. While the publication was written in 1982, the problems identified remain a decade later.

Beakey stresses the crucial need for a LOTS capability to insure flexibility for a rapid deployment joint task force (RDJTF) commander conducting combat operations. He highlights the enormous benefits brought about in the peacetime use of containers and the massive movement problems that they create during wartime operations when fixed port facilities are not available.

Colonel Beakey continues with explanations of Army and Navy systems, roles, personnel, organizations, programs, and missions for LOTS operations. He is very critical of the lack of funding support for LOTS systems and attempting to satisfy requirements with civilian or commercial assets. He recommends the investigation of commercial craft to augment a military fleet for short periods.

The Defense Department and the Services must recognize that the ability to discharge large amounts of cargo over the shore is a legitimate and urgent military capability. The steady conversion of our merchant marine fleet from break-bulk shipping to fewer, but larger, container ships offers serious problems to military users of the fleet.¹⁷

The containerization of military cargo adds another dimension to the complexities of discharge from shipping in the undeveloped theater. Cranes, Barges, and piers are required to deal with containers handled by LOTS operations; barge stripping by helicopter has been tested and is technically feasible but is not a recommended practice.¹⁸ Unloading by ramps and lighters is the only available alternative when deep water port facilities are not available. Sea state limitations, which are defined as a craft's ability to perform it's mission in deteriorating weather conditions and sea states, will significantly restrict ramp unloading operations and the use of lighters.

Heavy lift helicopters proved unsuitable for lifting containerized cargo from ship to shore and are not recommended except to fill urgent needs.¹⁹ Even balloons have been suggested for use in lots operations, but even the basic craft currently in inventory, and supposedly available for LOTS operations, have required long and dangerous open ocean voyages in order for them to be in theater.

During exercise *Puente de la Paz* (Bridge of Peace), an engineer civil action project conducted in Costa Rica, the 324th Support Group was tasked with providing CSS under a constrained budget. U.S. Army Landing Craft Utility (LCU) boats had to make a 500 nautical mile trip from Panama to provide LOTS services.²⁰

In the JLOTS portion of exercise Solid Shield 89, self deployed tugs were essential because of sea state. The after action evaluation of the exercise reported that problems with transoceanic deployment of tugs requires further study.²¹ Neither LCUs nor tugs are designed to be open ocean deployed and are limited in even coastal transits by their vulnerability to weather and sea conditions.

In his article, Colonel Beakey shows a 1982 need for increased LOTS capability that still exists today. He addresses the military's inability to fully interface and capitalize on the full use of containers, especially during wartime and the urgency to develop LOTS in order to exploit the benefits of containers.

A review of literature which uncovers historic medical shortfalls in contingency operations was limited to footnoted sources. Articles indicate that medical facilities and surgical capability may not be a part of the brigade's initial deployment to the undeveloped theater. Deficiencies in medical support and surgical facilities have been documented as far back as 1958 operations in Lebanon and as recently as Grenada. Twenty C-141 aircraft are required to deploy a MASH²² which may be the justification for reducing the priority in the airlift deployment cycle.

In Lebanon, problems flourished in coordination, shortages of medical supplies and resupply, lost equipment,

and confusion. Medical officers involved in the operation were interviewed, and the majority believed that there would have been a medical disaster if combat casualties had been encountered. A severe lack of surgical facilities during the initial stages of the operation is the predominant reason cited.²³ This was a significant shortfall in the operation.

During Operation Urgent Fury in Grenada, limitations in surgical capability were experienced because of deployment friction and the inadequacies associated with the airfield used to insert the sustaining forces.²⁴ Two days after deployment to Grenada, an ad hoc clearing station was improvised using a medley of U.S. and captured Soviet equipment, and supplies and blood "borrowed" from the Navy and Rangers. Serious cases were evacuated via helicopter to *USS Guam* after initial treatment at the clearing station as a stop gap measure. Once stabilized, both wounded and sick from *USS Guam* were returned to the clearing station for evacuation by USAF aircraft once they were available.²⁵

Tactical medical support experiences in Operation Urgent Fury were not an aberration, but part of a continuum relevant to contingency operations and the deep battle. This continuum stretches from World War II through Lebanon - 1958, the Dominican Republic - 1965, Grenada - 1983²⁶

Medical procedure during Operation Just Cause in Panama do not fit within the parameters of this study since U.S. infrastructure and extensive military bases provided medical support and evacuations which were not typical of an undeveloped theater. Operation Restore Hope in Somalia initially used medical facilities organic to the amphibious task force ships in the early stages of the operation; reports and lessons learned are not yet available at this writing.

From interviews conducted with Captain Baron C. Nelson, Commander Michael L. Felmlly, and Lieutenant Commander Brian M. Hodor, and using footnoted sources, the AOR's capabilities were examined.

As presently configured, the AOR carries approximately seven million gallons of cargo fuel with a maximum discharge capacity of one point seven million gallons per hour at one hundred PSI using all of the ship's eleven available cargo pumps.²⁷ It has a six hundred short ton ammunition capacity, four hundred and twenty five short ton dry and one hundred and fifty short ton refrigerated provisions capacity.²⁸ Medical, laundry, and galley facilities are commensurate to a ship with a five hundred man crew.

Propulsion is provided by three steam boilers to power two shafts for a maximum speed of twenty knots. The

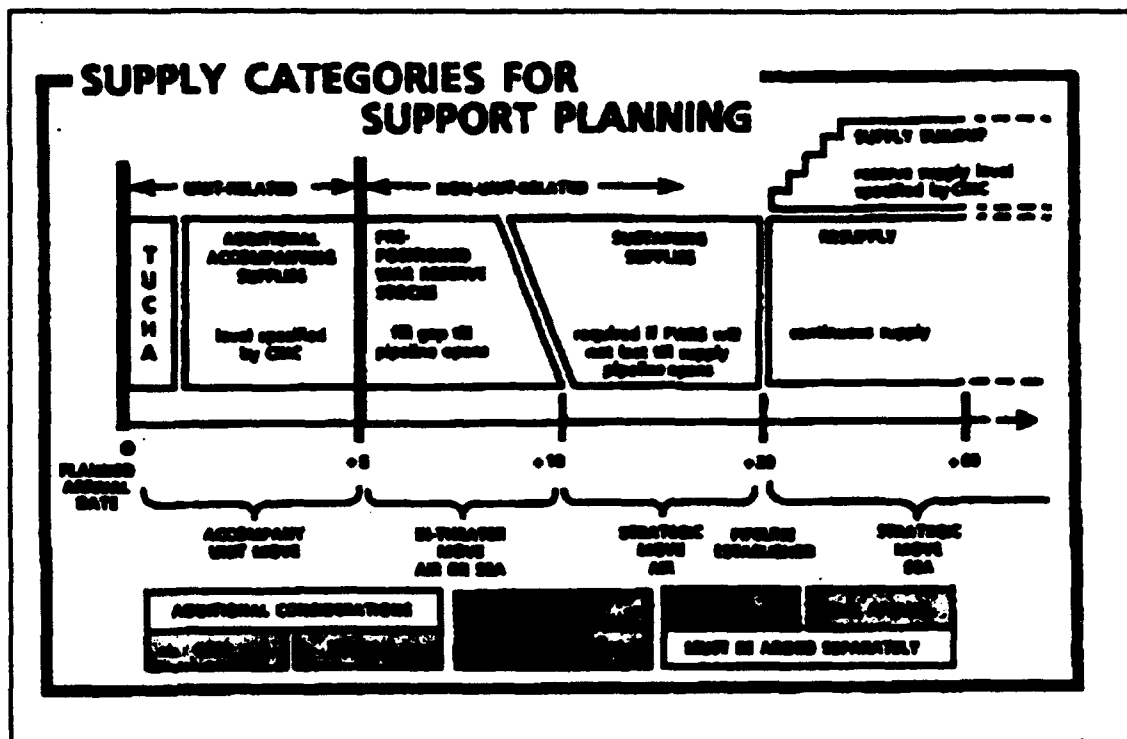
engineering plant includes evaporators which provide both boiler feed water and potable water for shipboard use. There is a capability to conduct water replenishment at sea but the practice is normally conducted to fulfill emergency requirements only.

The ship is capable of self defense against air and surface targets by employment of it's NATO Sea Sparrow (RIM-7M) missile system, two 20-mm Phalanx Close in Weapon Systems (CIWS), assorted decoy systems, and the SLQ-3(V)3 electronic warfare system.²⁹ The communication suite is capable of satellite, high frequency, very high frequency, and ultra high frequency secure communications.

The air capability includes two UH-46 Sea Knight helicopters for the vertical replenishment (VERTREP) mission, twin hangars and shops for helicopter maintenance, and a single circle flight deck. The flight deck can accommodate the landing of one helicopter up to and including the CH-53E.³⁰ The AOR flight deck can land all helicopters in the Army and Navy inventory, however, shipboard landing qualifications for pilots is required. VERTREP is the use of helicopters to replenish ships or facilities with external loads of ammunition or cargo hung below the helicopter.

Joint Force Structure for Sustaining Contingencies

An outline for support planning is provided by figure 6-16 of AFSC Pub 1, The Joint Staff Officer's Planning Guide and is illustrated in the figure below.



Source: AFSC Pub 1, Page 6-49

Figure 1

The outline begins on the planned arrival date showing a unit will rely on additional accompanying supplies for five days. The figure indicates that between days five and thirty, pre-positioned war reserve stocks and sustaining supplies will be adequate until a strategic sealift supply

pipeline is established after day thirty. Medical requirements are displayed as "additional considerations."

Joint transportation feasibility analysis, transportation planning, and support planning are explained and show the broad goals and objectives at the joint staff level. AFSC Pub 1 gives a broad overview of the logistics planning process but, is not intended to be specific enough for the planner to use as a checklist for planning the sustainment of an airborne brigade contingency operation.

H. Robert Keller IV addresses the post-Soviet threats to the United States military and how the force structure may become constricted in order to face a less obvious threat on a less intense scale in the Air Force Journal of Logistics, fall 1989 edition. He identifies the most immediate threat to military planners as being financial. The blank checks and wish lists of the Reagan administration's years are over and defense dollars are a very tempting target for budget reduction task forces. He fears that logistics and combat support are prime targets for major reductions because they lack the glamour of combat ships, fighter planes, et al.

Force structure issues are addressed by investigation. Keller asks what contingencies the United States military plan for and, to what extent does the logistician become involved to save combat support from

being the military sacrificial lamb of the budgeteer. Keller recommends that policy and priorities be established to adapt to the changes in the military role but fails to focus on what the logistic goal and doctrine should be when planning for these future contingencies. He recommends that U.S. strategy include reconsideration of military commitments since the size and capabilities of the future force structure of the military as a whole is unknown. Additionally, Keller recommends that the military balance it's capabilities with requirements and fill logistic gaps so as not to hinder any logistic capabilities that sustain combat operations.

Keller's article identifies shortfalls and problems in funding as the military downsizes and reduces it's budgets from the Cold War era, but fails to make any significant proposals on what the post-Cold War U.S. military, including CSS, should look like. He does indicate that the shift of the less-than-glamorous logistics role to the reserve component as a tradeoff of paper financial savings, will result in operational problems later. He also indicates that formulation of a purple (joint) agenda of priorities pressing for the funding of transport, supplies, and people vice procurement of more flashy high-tech systems is warranted.

The CLF in a purple role is briefly addressed by Captain John J. Bepko III in his unpublished paper presented to the Naval War College in 1991 titled, "Sustaining the Force: The Combat Logistics Problem in the 1990s and Beyond." He reviews the present role of the CLF as one of supporting U.S. Navy assets but highlights the CLF being in a position to support all services. The economic benefits of a navy oiler to provide fuel will negate the requirement to activate a Ready Reserve Force (RRF) tanker or hire a commercial tanker. In contingency operations like Grenada or Panama, Captain Bepko believes the CLF can provide all Army and Air Force requirements. He fails to stress that CLF assets are active duty ships with active duty military crews which gives them increased readiness and a combat capability but, are time constrained by their extensive Navy requirements and small numbers.

Most CLF ships are somewhat capable of self defense against a missile threat, and the ships remain fully stocked and loaded because of their fleet support role. These loaded ships could be sent or diverted to a contingency in a reasonable time period negating the activation of a pre-positioned sealift ship or the rapid pelletizing and transport of a swiftly defined sustainment package for accelerated loading on airlift assets if available.

Bepko's final point is that a purple CLF may lead to it being placed under the control of the U.S. Transportation Command (USTRANSCOM), a supporting Unified Commander. This would make the Navy a competitor for its own CLF assets and require a significant amount of advance planning.

Currently, a Battlegroup Commander is rarely compelled to project his future logistic requirements for resupply from outside sources. This organizational change would require major procedural adjustments to operational surface forces. Captain Bepko leaves the question of alternatives to the CLF being placed under U.S. TRANSCOM control and the possibility of dedicating a CLF platform to supporting a contingency operation as one of its primary mission areas.

Summary

Whether caused by budget restraints, neglected doctrine, or shortsighted planning because of a European based national military strategy, it appears that requirements to conduct and sustain contingency operations have not received adequate attention. The changing political stability of the world has necessitated the Army to withdraw from forward bases and rely on a power projection strategy with rapid deployment responsibility resting primarily on units of the XVIII Airborne Corps.

Sustainment of airborne forces in an undeveloped theater will rest initially on airlift providing airdropped

resupply. Follow-on forces, if required, will rely on airlift to enter the theater while the predominance of their equipment will be delivered by sealift. At present, the logistic planner has only three options for sustaining a brigade-size airborne force committed to a contingency operation in an undeveloped theater: (1) rely on airdrop resupply until sufficient repairs or construction can be achieved for air facilities to accommodate the landing of aircraft; (2) if geographically feasible, conduct LOTS operations from large pre-positioned sealift assets if required LOTS equipment is available; (3) Rapidly build up follow-on forces and conduct link-up operations before sustainment and support levels become critical.

Logistics shortfalls which have been repeated in contingency operations have not resulted in the formulation of solid doctrine backed by force structure. Assumptions regarding developed infrastructure and HNS are present in most if not all logistics publications. New doctrine like FM 100-5 addresses some of the capabilities of sister services when fulfilling a joint role but, there is yet to be a planning publication which presents the contingency planner a list of options which he could apply to his requirements. The logistics planner for an airborne contingency must rely on his or her versatility and ability

to improvise; the formula for responsiveness has yet to be integrated into doctrine.

Active Navy ships have significant advantages over civilian manned sealift assets. The Navy's CLF has provided sustainment to the fleet throughout this century.

Restructuring of fleet requirements and a changing world allows the possible application of selected ships of the CLF to be tasked with supporting the rapid deployment arm of the power projection Army. Budget restrictions are progressively constraining planners into utilizing "make do" approaches for meeting military challenges and solving logistical problems. Questions regarding command and control of a joint sustainment asset, if the concept is adopted, will require further attention.

ENDNOTES

1. U.S. Army, FM 90-26, Airborne Operations (Washington: Department of the Army, 1990), 1-5.
2. U.S. Army, FM 100-17, Mobilization, Deployment, Redeployment, Demobilization (Washington: Department of the Army, 1992), 1-3.
3. Fred E. Elam and Mark Henderson, "The Army's Strategic Mobility Plan," Army Logistician PB 700-92-3 (May-June 1992): 3.
4. U.S. Army, FM 100-5, Operations (Final Draft) (_: Department of the Army, 19 January 1993), 8-1.
5. Joint Strategy Review Non-Traditional Roles Study Group, Strategy Division (J-5) "Non-Traditional Roles (NTR)," information paper presented to the Joint Chiefs of Staff, Washington, D.C., 17 March 1993
6. Joint Low-intensity Conflict Project, Final Report, Volume I Analytical Review of Low-Intensity Conflict (Fort Monroe, VA: U.S. Army Training and Doctrine Command, 1986), 1-3.
7. David Silverstein, "LIC Commentary," National Defense LXXV (December 1990): 28.
8. Departments of the Army and the Air Force, FM 100-20, Military Operations in Low Intensity Conflict (Washington, DC: December 1990), 5-3.
9. U.S. Army, FM 100-5 (Final Draft), 9-1.
10. Gary H. Wade, Rapid Deployment Logistics: Lebanon, 1958, Combat Studies Institute Research Survey, no. 3 (Fort Leavenworth: USACGSC, 1984), 54.
11. Gilbert S. Harper, "Logistics in Grenada: Supporting No-Plan Wars," Parameters, June 1990, 51.
12. "Supporting Just Cause," Army Logistician, July-August 1990, 4.
13. "Logistics Will Be Tougher Than Those for Gulf War," Kansas City Star, 6 December 1992, p. A-8.
14. Ibid.

15. Jimmy D. Ross, "Focusing Logistics for the Future," Military Review no. 9 (September 1992): 55.
16. Mark L. Hayes, "Sealift: The Achilles' Heel of our National Strategy," Marine Corps Gazette 76 (November 1992): 78.
17. Dan J. Beakey, Logistics Over the Shore Do We Need It? National Security Affairs Monograph Series, 82-6 (Washington, D.C.: National Defense University Press, 1982), p. 45.
18. Military Traffic Management Command, MTMC-PAM-55-3, Barge-Ship Systems: Description, Guidance, and Transporting of Military Cargo (Washington, D.C.: Headquarters, Military Traffic Management Command, June 1977), p. 6-48.
19. MTMC-PAM-55-3, Barge-Ship Systems: Description, Guidance, and Transporting of Military Cargo (Washington, D.C.: Headquarters, Military Traffic Management Command, 01 June 1977), p. 6-48.
20. Allan G. Little, and James E. Chambers, "Creative Logistics in Costa Rica," Army Logistician PB 700-88-1 (January-February 1988): 9.
21. David Taylor Research Center. "Evaluation of JLOTS Lessons Learned in Solid Shield 89," (Bethesda, MD.: September 1989), p. 150.
22. David L. Nolan, "Airborne Tactical Medical Support in Grenada," Military Medicine 155 (March, 1990): 109.
23. Gary, H. Wade, Rapid Deployment Logistics: Lebanon, 1958, Research Survey, no. 3 (Fort Leavenworth: Army Command and General Staff College, Combat Studies Institute, 1984) p. 72.
24. Nolan, "Medical Support in Grenada," 109.
25. Ibid.
26. Ibid., p. 110.
27. U.S. Army, FM 10-70-1, Petroleum Reference Data. (Washington: Department of the Army, 1983,) 1-7.

28. Interview with Commander Michael L. Felmlly, Chief of Naval Operations (N865P4), Washington, D.C., 23 February 1993.

29. Norman Polmar, Ships and Aircraft of the U.S. Fleet, 14th ed. (Annapolis: Naval Institute Press, 1987), p. 302.

30. U.S. Navy, NWP 42 (rev.1), Shipboard Helicopter Operating Procedures. (Washington: Department of the Navy, 1991), D-3.

CHAPTER THREE

RESEARCH DESIGN

Focusing on employment of the Navy's Combat Logistics Force for sustainment of airborne brigade contingency operations in an undeveloped theater required an understanding of a contingency including the sustainment requirements, problems and shortfalls. Historic shortfalls, once quantified, can be compared to the capabilities of the CLF to alleviate sustainment deficiencies when supporting contingency operations in an undeveloped theater.

The specific research question asks: Can the Navy's CLF be employed to extend the sustainment of a U.S. Army airborne brigade contingency operation in an undeveloped theater beyond the traditional 48 hours? To answer the specific research question, five subordinate questions were developed: (1) "What lessons learned from past contingency operations and base resupply operations involving CLF ships can be applied to form joint sustainment doctrine?"; (2) "What will be the ship's configuration and pre determined load?"; (3) "Taking into account the characteristics of Army contingency operations in an undeveloped theater, which scenarios will be suitable to employ Navy CLF support for

sustainment?"; (4) "Can the CLF sustainment ship provide field services to the contingency operation and if so, what personnel augmentation is required?"; (5) "Is it necessary to homeport the sustainment ship taking into account desired geographic coverage for the concept to be viable?"

Explanation of the Method of Approach

The methodology required to solve the research problem and apply the CLF as a possible solution in specific scenarios included reviews of published and unpublished research, Army field manuals, as well as a review of published historical accounts of logistics and sustainment in contingency operations and exercises. The research design will gather information encompassing historical and oral surveys combined with analysis of current procedures.

Once collected, the information will be characterized in the format of a modified Army Command and General Staff College (CGSC) decision making process. This technique is based on the CGSC methodology for regional force planning which was presented through CGSC course C-510. The methodology is presented as follows:

- Use of descriptive research.
- Review of Historical Examples.
- Isolation of successful and unsuccessful techniques.
- Consolidation of data.

Application of the research to provide a logical problem solving concept will be introduced in chapter four in the following format:

- Requirements and historic shortfalls.

- Existing capabilities.

 - The CLF

 - The AOR

 - Army contingency force deployment

- Proposed Solution.

 - The sustainment platform

 - Army augmentation and operations

 - Homeporting and geography

 - Doctrine

- General concept scenario.

 - Risk considerations

 - Mission considerations

 - Employment considerations

Data Sources

Required information for this thesis was collected primarily using secondary data sources. Secondary data sources were carefully evaluated considering the date of publication or release as suitable criteria for inclusion in the study.

A significant amount of information relating to the subordinate questions was examined through a review of

historic and current literature presented in chapter two, Literature Review. To properly address the secondary questions, additional research was conducted through interviews with CLF experienced Naval Officers, personal experience, and project and exercise reports which were applied to information gained from research conducted in the literature review.

Because of a lack of available literature about CLF operations related to shore support, interviews were required from experts with extensive CLF experience to fill in voids of general information. Interviewees had at least two significant afloat tours in the CLF, and at least one significant shore assignment related to CLF operations or force structure. The three persons interviewed exceeded all criteria for selection.

CHAPTER FOUR

PRESENTATION AND ANALYSIS

This chapter presents and analyzes employment of a modified replenishment oiler (AOR) in the Navy's CLF to sustain an airborne brigade deployed to a contingency operation in an undeveloped theater. It will also include proposed applications of the ship for uses when not involved in contingency operations or exercises. Much of the discussion will relate to the problems facing a contingency force's sustainment options in view of present military sustainment capabilities and budget environment. At present, the Army commander does not have the ability to completely dictate his sustainment package for a contingency operation because afloat pre-positioned assets are not tailored to a particular unit, and airlift availability may be the primary factor in sequencing the arrival of forces.

A military planner is obligated to plan and conduct operations effectively, efficiently, and economically. This chapter introduces a sustainment alternative to expensive airdrop resupply or lengthy LOTS operations which can be included in planning considerations for contingency operations. Application of the CLF to Army airborne

contingency operations combines efficiency with economy of force in the support and sustainment of combat forces.

Requirements and Historic Shortfalls

The review of the literature indicated that there is a void in the sustainment capabilities of a corps contingency operation in an undeveloped theater for the initial forces deployed. "Our initial response to a crisis is most likely to come from forward-deployed forces or airborne forces."¹ During the periods of and between phases two and three of the contingency operation the lead brigade in contact requires sustainment beyond it's basic load. Correspondingly, an operation that only employs a brigade, or less than a brigade, will depend on extensive air drop resupply or host nation support, if available, throughout the contingency.

The lack of sufficient infrastructure is a shortfall in an undeveloped theater which severely limits delivery methods and causes a reassessment of dependance on host nation support. The lack of infrastructure and the expense of aerial resupply of high-bulk low-value items such as class I (including potable water or the equipment to produce it), III, and V supply should cause the logistic planner to look toward maritime delivery if feasible.

Even the airlift of aviation ordnance into a theater of war is not cost effective. Take the Air Force's main transport aircraft, the C-141, it can only transport enough ordnance for one B-52 sortie.²

When employed in an undeveloped theater, Pre-positioned and fast sealift RORO and container ships require either extensive investment in facilities or LOTS equipment. Both of these alternatives prescribe the infusion of defense dollars that could be better spent on force structure, equipment, and combat capabilities. Surge sealift consisting of prepositioned ships and FSS identified to rapidly build combat power during the initial stages of a contingency operation are capable of delivering vehicles, aircraft, and unit equipment.

Sustainment shipping is designated to follow the initial surge, have extensive cargo capability and are typically specialized for containerized cargo.³ Some of the greatest handicaps to the use of sustainment shipping includes: (1) A lack of adequate infrastructure prohibits using sustainment shipping to resupply and support the lead airborne brigade of rapid deployment forces in the undeveloped theater; (2) committing a sustainment sealift asset to support a single brigade contingency operation, even where port facilities are available, harnesses a national strategic asset capable of sustaining an organic division to an operation which requires far less of an

investment. Thus, airdrop resupply will continue to be the likely candidate for initial sustainment of airborne forces.

The lack of sufficient surgical capability deployed with the initial airborne brigade in a contingency operation necessitates further investigation. The current alternative to answering early deficiencies appears to be the deployment of extensive medical equipment and facilities in follow-on echelons. The ability to insert a surgical capability with the initial brigade deployed to an undeveloped theater contingency would significantly enhance the survivability of wounded personnel, improve morale, and consequently increase the efficiency of both combat capability and airlift orchestration.

Field services are another area of support that must presently be relegated to follow-on sorties of airlift. While not as essential as surgical support, class I, III, or V supply, the deployment of primary and secondary field services early in the deployment sequence without loss of precious aircraft space would be a useful asset to the combat commander. During Operation Urgent Fury significant deployment delays were experienced in field service as well as the surgical capability previously discussed.

Non-divisional units faced an almost impossible task in attempting to get into the airflow [in Grenada]. For example, the COSCOM's graves registration team cooled its heels at Green Ramp for 48 hours after it had been called forward, while the 5th Mobile Army Surgical Hospital was

alerted on 25 October but spent five days waiting to deploy.⁴

Available options to fulfill logistic requirements to expeditiously support the initially deployed force of an airborne brigade conducting a contingency operation in an undeveloped theater remains unidentified. The need for uninterrupted sustainment of classes I, III, and V supplies with a surgical capability and limited field services is essential for the commander to accomplish his mission. These essential elements of sustainment coupled with the requirements of force buildup and personnel rotations, evacuation, and replacement in a contingency operation puts an unreasonable demand on our airlift capacity.

The identified sustainment requirements for an undeveloped theater, in order to ease dependence on airdrop tasking, is the amount of classes I, III, and V supplies to sustain a brigade from day three of a contingency operation. Additional requirements should include a surgical facility, a dental facility, and accommodation for limited field services to include mortuary services, a field kitchen equivalent, and laundry facilities for clothing exchange.

The size of the lead brigade is estimated at twenty eight hundred for the purposes of this thesis. Requirements for day three to day twenty-one are estimated to be:⁵

| <u>CLASS I(MRE)</u> | <u>CLASS III(bulk/package)</u> | <u>Class V(Lt intensity)</u> |
|---------------------|--------------------------------|------------------------------|
| 120 tons | 486,656 gal/15.7 tons | 1,045 tons |

Seventy six personnel are estimated to be casualties from day one through twenty one of a contingency operation.⁶ Total U.S. casualties in Grenada which required an overnight stay at a medical facility numbered seventy-seven.⁷ To cope with casualty numbers anticipated in contingency operations, an available medical facility should include four operating tables, and a thirty bed recovery area which supports the mission framework of a flexible far-forward surgical capability⁸ under the Army's medical module concept.

Although not included in the Army MASH, the addition of a dental capability would significantly increase the expertise of the surgical facility to sustain forces. A dental chair in addition to the MASH design should more than solve the present shortfall of a deployable surgical capability and lack of dental facilities. Manning requirements for any medical/dental facility must be realized by the Airborne Corps table of organization.

Force reductions resulting from the demise of the former Soviet Union have caused the Army to adjust from a heavy forward deployed force focused on the defense of Western Europe, to a small, CONUS based, deployable Army envisaged for contingency operations. The reality of a power projection Army must include the logistic capability

to sustain a force of any size in areas with little or no infrastructure. Support and sustainment assets must be adequate for the task at hand, yet not excessive in physical size or capability. Nor can we afford to produce a system or series of platforms tailored to support and sustain every conceivable mission or operation which may be contemplated by the National Command Authority.

Existing Capabilities

The CLF

The shrinking defense budget has forced Navy planners to foresee the reduction of aircraft carriers from fourteen to ten or less. Reduction in the numbers of aircraft carriers coupled with the building program of at least four new multi-product ships has caused the planned decommissioning of at least three AOR class ships and an entire class of ammunition ships (AE) by the end of 1994.⁹

As additional aircraft carriers are decommissioned and new multi-product ships are built, more of the AOR class will be considered surplus; transfer of shuttle ships to the Military Sealift Command has already begun.¹⁰

There remains a role for the surplus AORs to provide both sustainment in a joint contingency operation sustaining airborne forces as their primary mission and, to support Navy underway fuel replenishment and training as a secondary mission. "In efforts of the magnitude of Desert

Shield/Storm, the CLF could not provide all the Army and Air Force requires, but certainly in contingency operations, such as Granada [sic] or Panama, it can."¹¹

The AOR

If tasked to support the lead brigade in a U.S. Army airborne contingency operation, the AOR as configured could supply the contingency force commander with significant class I, extensive class III, limited class V, restricted medical, and scanty field service support. Organic AOR capability could possibly assist in the sustainment of an airborne brigade during a contingency operation but, the lack of medical facilities and limits on class V would cause an astute planner to seek alternate sources to augment historical sustainment shortfalls. Modifications to the AOR which will tailor it's organic capability to the contingency airborne brigade sustainment mission will be outlined later in this chapter.

Army Contingency Force Deployment

Army logistics planners have an inherent obligation to tailor the CSS package to fit the needs of the contingency force relying on airlift for deployment and the continued support required. Task-organizing and echeloning have been identified by the Army as ways to successfully execute the rapid deployment concept. Task forces are to be

formed with limited self-sustainment capabilities. Priority for movement within the task force will be established and echeloned to accommodate available airlift. CSS units are to be established in the planning stages and are charged with adaptability, flexibility and capability for varied support tasking.¹² The airborne Division Support Command is fully capable of tailoring a CSS package to accompany the lead brigade in a contingency and sustain that brigade for from 48 to 72 hours with essentials. "After the initial airdrop, the sustained combat power of airborne forces depends on resupply b air. Any interruption in the flow of resupply aircraft can cause potential weakening of the airborne force."¹³

The lead brigade is presently dependent solely on airlanded or airdrop for their sustainment after the depletion of their basic load during the contingency operations in an undeveloped theater. Because of the inherent characteristics of the undeveloped theater, airdrop resupply may be the only alternative. This will further restrict the type of aircraft which can be employed for sustainment. The fallout of squandering aircraft sorties for numerous sustainment airdrops of high-bulk low-value items will be a needlessly generated shortage of available aircraft which may be required for more appropriate airdrop or airlift requirements.

Airlift space requirements for both combat forces and their sustainment essentials in the rapid deployment contingency scenario appears to be contrary to the extensive augmentations called for in FM 63-2-1. The goal of sustainment doctrine for airborne forces in a contingency should be doing the job with the fewest resources. To fulfill this goal, doctrine must first acknowledge that infrastructure does not always exist in the undeveloped theater where a contingency is most likely to occur. It must then provide options and ideas for the sustainers to perform their mission without major augmentation or reliance on unfounded assumptions that wish away adversity.

Should the lead brigade be determined to have the required force to accomplish the contingency mission, more choices must be made. Considering that there will not be follow-on forces deployed, a decision whether to invest in runway and or seaport improvements is required.

In an undeveloped country, the provision of ports and port facilities should probably have top construction priority until the support logistics can be entered through those ports. After that, priority decisions for airfield and other needs may achieve higher urgency.¹⁴

Construction is expensive, requires extensive combat support units, and may be an unnecessary expense.

Proposed Solution

The Sustainment Platform

The only available CLF ship that is capable of fulfilling an Army contingency sustainment role is the Wichita Class Replenishment Oiler, or (AOR-1) Class. As presently configured, the AOR is capable of sustaining the lead airborne brigade of a U.S. Army airborne brigade contingency operation from day three to day twenty-one with class I and III supplies. The recommended modifications to the ship will facilitate specialization in the Army contingency operation sustainment role.

The ship, without modification, has a complement of 20 officers and 430 enlisted personnel¹⁵ which increases by approximately 8 officers and 27 enlisted personnel with the aviation and explosive ordnance disposal (EOD) detachments which are attached for deployments. The AOR has sufficient personnel assigned to conduct the underway replenishment (UNREP) of one ship to either side manning at least six UNREP rig stations and the helicopter flight deck simultaneously.

In order to accommodate an increased medical facility, it would be necessary to deactivate and possibly remove all of the starboard side fuel and cargo stations. The modified ship will retain all of it's port side UNREP capabilities since the port side stations are the only ones

able to service an aircraft carrier. While this modification will reduce UNREP capability to only a single ship along the port side, normal tasking should consist of only training UNREPs and fuel UNREPs of opportunity supporting a fleet training group. The prevailing capabilities will be sufficient to fulfill the proposed peacetime mission.

As a consequence of the reduction of cargo stations along the starboard side of the AOR is a reduction of required personnel. Four fewer delivery stations means at least three fewer rig teams will be necessary. In manpower this equates to a crew reduction of at least thirty deck personnel and approximately five UNREP mechanics. This reduction in the ship's force will provide at least thirty five open bunks for Army enlisted augmentation personnel.

Class V ammunition will have a shortfall of 445 tons or approximately seven days supply in a light intensity operation and, a shortfall of approximately 1,300 tons or twelve days supply during moderate intensity.¹⁶ Fuel capacity in the AOR is plentiful, and without a battlegroup support mission, a modification to reduce fuel capacity and increase ammunition capacity by 500 tons would not harm the ship's overall sustainment capability. The added 500 ton ammunition capacity will adequately cover the projected shortfall of class V supply during light intensity

operations and extend class V supply approximately four to five days during a moderate intensity operation.

The ammunition would be loaded, inventoried, stowed by ship's force personnel. Breakout would only be undertaken during a contingency operation, exercise, or when directed by the authority responsible for load determination. Army augmentation during exercises or operations could consist of a very small liaison team since the ship is manned to conduct ammunition UNREPs to support the fleet. The semi-permanent nature of the ammunition loadout may also reduce the manning requirements for the ship's Weapons Division since ammunition load adjustments would be infrequent.

Class V loadout could be determined by the XVIII Airborne Corps or the CINC exercising command over the homeport of the AOR. Flexibility would be increased if the CINC determined the ammunition load since he would then have the ability to target the class V support package to his tailored force prior to it being deployed in theater. Replacing class V with class I, II (equipment), VI (personal demand items like candy, soap, etc.), or X (material for civil affairs support) could be directed by the CINC for peacetime contingencies like disaster relief, security assistance surges, or support to U.S. civil authority.

The spartan medical facilities in the AOR must be expanded and significantly improved to include introduction of a four table surgery, a small dental facility, and at least a thirty bed recovery area.¹⁷ Expansion of the medical ward into crew berthing areas will be possible when necessitated by recovery area overflow should the ship be considered for other non-traditional roles such as humanitarian relief. Adequate space for a laboratory, triage, X-ray, storage for class VIII (medical) supplies, pharmacy, and supporting offices must be considered. A pharmacy, examination room, office, and small ward which presently services the AOR crew would be available to expand the hospital if required. The expanded medical facility should remain in a "care taker" status until manned by Army augmentation personnel.

Mortuary Services should also be made available in the AOR. A small morgue could be incorporated within the medical complex which would give an airborne unit an organic graves registration capability for the first time. The facility would also negate any need for hasty burials if the tactical situation or infrastructure prohibits Air Force evacuation of remains.¹⁸ Army manning would be required.

Potable water production capability can be increased by the installation of at least one ROWPU. Hospitals require considerable amounts of potable water for their

normal operations. The added potable water production capacity will be useful in not only Corps Contingency Operations, but also in disaster relief tasking.

The removal of all starboard side UNREP stations will allow adequate area for the erection of the medical complex and Army augmentation facilities. This structure should consist of two levels extending from the forward to the after superstructure with allowance for the ship's motor whale boat davit. The top level must be uniform with the flight deck to facilitate the movement of wounded. The top level would include the triage area, surgery, laboratory, dental, and recovery area. The lower level would house other Army CSS sustainment facilities and troop berthing.

The ship's communication suite would require minor modifications to allow for ship/shore communications for support coordination. An Army Air Defense Artillery officer and Signal Corps liaison team will be required. These officers could act as the Commander's liaison and primarily coordinate the employment of the ship's air defense system to complement and not endanger Army operations, and to fully realize inter-service communications with minimum headaches.

The two utility boats currently outfitted in the AOR may require replacement by two Landing Craft Vehicle and Personnel (LCVP) boats. LCVP boats are outfitted in amphibious ships to support Marine Corps operations. If

housed in a single over and under davit in the AOR, they would require less deck space than the present utility boats. The added capability of a landing craft, although small, would increase the versatility of the sustainment ship and increase the sustainer's application options. Additionally, the LCVP would be a significant benefit when deploying the floating pipelines from the ship to shore for delivery of class III and possibly potable water. Required components of the floating pipelines to support an Army Tactical Marine Terminal (TMT) would be carried and deployed by the AOR.

Nets, slings, etc. are currently carried in the AOR to facilitate the VERTREP mission. Evaluation of the requirements for aviation retrograde in order to support a brigade strength corps contingency operation will provide guidelines for these requirements. CLF flight deck crews and Ordnance Division personnel are trained at rigging external loads of cargo and ammunition for VERTREP.

The cost of modifying the AOR to fill the sustainment role appears to be a moderate investment. In 1987 the conversion of two "San Clemente" class tankers into "Mercy" class hospital ships was completed. Each ship was equipped with 1000 beds, 12 operating theaters, physical-therapy, burn care units, and every medical support facility imaginable. Total combined cost for the

conversion of both ships was \$524 million in fiscal year 1983 and 1984 dollars.¹⁹ These ships are maintained in a care taker status with a small combined civilian and Navy staff onboard. When deployed to Desert Shield/Storm, their medical facilities were staffed by active duty personnel assigned to naval hospitals and reservists; the ship's company was civilian merchant mariners.

Complete overhaul and modification of the AOR would be a rational expense considering the multi-mission ship resulting from the investment. Exact cost figures are unavailable without competitive bids and contracting experience. However, using the average cost of the tanker conversions of \$262 million as a baseline, and estimating that the work involved for the AOR would be about 20% of the tanker-hospital ship conversion, three AOR conversions should total approximately \$73.6 million per ship in 1994 dollars based on a 10% discount factor. This investment should completely update and equip the ships for 15 to 20 years of further service.

Army Augmentation and Operations

Estimated Army augmentation would consist of approximately 42 medical personnel to completely man the MASH and dental facility. Other Army personnel will be to augment ship's company during the operation or exercise. Based on personal experience in the CLF, and information

gained through attending the Army Command and General Staff College, I estimated Army augmentation should include: Three signal personnel to the ship's radio central, a single air defense artillery officer to act as a liaison, 3 ordnance personnel for the ship's Weapons Division, and 3 aviation personnel to support ship's air capabilities.

The ship's laundry, galley, and mortuary facility should also receive a small Army augmentation team of 16 quartermaster personnel. Existing laundry and kitchen facilities in the ship should be adequate to accommodate Army requirements to support a single brigade or less. A ship's laundry and galley normally operate approximately twelve hours a day. Army augmentation would allow 24 hour operation and support the combat brigade.

A reduced Finance Support Team (FST) consisting of about two Army personnel can augment the ship's disbursing office. The FST is able to perform any function normally handled by a Finance Detachment for short durations which equates to what would be encountered during a contingency operation.²⁰ The total requirement is estimated at 68 Army personnel.

The deployment of the airborne brigade will be less constrained once a new sustainment method is implemented. Under the direction of a Division Support Command (DISCOM), the Forward Support Battalion (FSB) supporting the initial

brigade will require less tailoring when using the AOR for sustainment. Sustainment capabilities in the ship and support required to execute that sustainment capability will be a constant, thus, will require less crisis planning for logisticians. Presently, the DISCOM forms up to three echelons with the FSB being tailored to the mission in order to support the assault echelon.²¹

The FSB combat support packages and personnel in the assault echelon must include provisions to assemble and operate the TMT and a logistics helipad. Personnel required to accomplish the AOR augmentation could arrive in a follow-on echelon provided that they are in theater prior to required resupply of the traditional 48 hour basic load.

The foreseen change in the assault echelon will include the addition of engineer port construction company personnel to construct the offshore portion of the tactical marine terminal (TMT) for fuel distribution and the logistics helipads. Increased quartermaster, air traffic control, and transportation support personnel will be required to operate the TMT and will be the determining factor for the decision to establish additional logistics helipads.²²

The onshore portion of the TMT resembles a large fuel supply point and functions as the base petroleum terminal in the undeveloped theater. A petroleum pipeline and terminal operating company (TOE 10-207) is responsible for installing the onshore portion of the system and is responsible

for operating the entire TMT once it is installed.²³

The key ingredient for success will be to have the TMT and logistics helipad ready to conduct operations at the time of arrival of the sustainment AOR.

Helicopter operations between the sustainment ship, logistics helipad, and the forces being supported is a critical element in the successful employment of the AOR. The ship carries two CH46 aircraft; each helicopter can transfer single loads of up to 3700 pounds. In 1991, two such aircraft transferred a total of 775 external ammunition lifts in 800 sorties during three 12-hour periods at Po Hang, Korea. Ship-to-shore distance was 3 miles.²⁴ Other similar operations have been conducted at Diego Garcia, Iwa Kuni, Japan, al Misharh, Oman, and Naval Weapons Station Seal Beach, Fallbrook Annex, California.²⁵ While these and other ship-to-shore VERTREPs were very successful, the intensity of brigade sustainment in a hostile environment dictates augmentation by Army assets.

With a maximum ferry range of over 1000 miles, CH-47D and UH-60 aircraft could conceivably be ferried to the undeveloped or undeveloped theater to support AOR sustainment operations.²⁶ Selected assets of a medium lift helicopter company could be airlanded where infrastructure allows for further self-deployment into theater. Based at the logistics helipad, Army aircraft will increase the

efficiency of the entire sustainment operation and give the brigade commander both flexibility and versatility in his overall combat support and CSS scheme.

To properly use Army medium lift helicopters to conduct sustainment operations from a Navy ship, soldier training is required in two areas; airload planning, and rigging proficiency. Load planning is taught by the Army and Air Force while rigging for external loads is taught at many Army installations.²⁷ The Navy provides landing signalman enlisted and flight deck safety officer schools; rigging is taught through on the job training and completion of personnel qualification standards.

Pilots must be qualified to land on ship's flight decks and to conduct VERTREP which is a third area requiring training. These qualifications can be scheduled through Navy channels and be conducted on a regular basis to ensure qualifications are kept up to date. The possibility also exists for further joint training, exercises, and cross attachments between Navy helicopter support squadrons and Army medium lift helicopter battalions.

Army personnel required to augment the ship's company and facilities will be required to enter the theater with the initial echelons of the airborne brigade. If given enough lead time, these personnel would deploy early go directly to the ship prior to movement. The personnel will

be transported to the AOR in the first helicopter sorties while the ship is underway and closing the area of operations.

Homeporting and Geography

Homeport location of the AORs must be determined in order to provide maximum deployability within strict time limits enabling the critical support to the airborne brigade. The locations must also be within a reasonable steaming distance from the majority of potential crisis areas within the theater.

The maximum speed of the AOR is 20+ knots and the average speed used for a high speed transit is 18 knots. Anticipating that the CINC will demand the arrival of the lead brigade no sooner than 72 hours of the time he anticipates using combat power in a contingency, the AOR can be on station within 40 hours of the arrival of the airborne brigade within a radius of 2000 miles at 18 knots. At twenty knots, that time is reduced to 28 hours. In both cases the time before arrival of the AOR will allow the lead echelon to prepare the TMT, logistics helipads, and deployment of the medium lift Army helicopters required.

From the 2000 mile criteria, the optimum homeports of the AORs can be identified as Mayport, Florida; Naples, Italy; Sasebo, Japan; or Guam. A Mayport based AOR can cover the Atlantic from Nova Scotia to northern Brazil,

including the entire Caribbean. Accounting for canal transit time, the ship can also range from Guatemala to northern Peru on the Pacific side supporting the Commander in Chief Atlantic Command (CINCLANT). As its secondary mission, the ship will be able to support fleet training activities and fleet oiler assignments from the Commander, Naval Surface Force Atlantic and Naval Station Guantanamo Bay, Cuba. (See figure 2, p 78)

From Naples, an AOR can range the whole Mediterranean and Black Sea, the Red Sea to southern Egypt, the Atlantic to southern Norway, and northwest Africa from the Strait of Gibraltar to northern Western Sahara. This AOR can fulfill a secondary mission of supporting fleet oiler and fleet training assignments from the Commander, Task Force Sixty-Three in Naples, Italy. (See figure 3, p 79)

The homeport of the last brigade sustainment AOR can be either Sasebo, Japan or Guam, Mariana Islands. Its secondary mission would be to support fleet training activities based in Yokosuka, Japan and Guam.

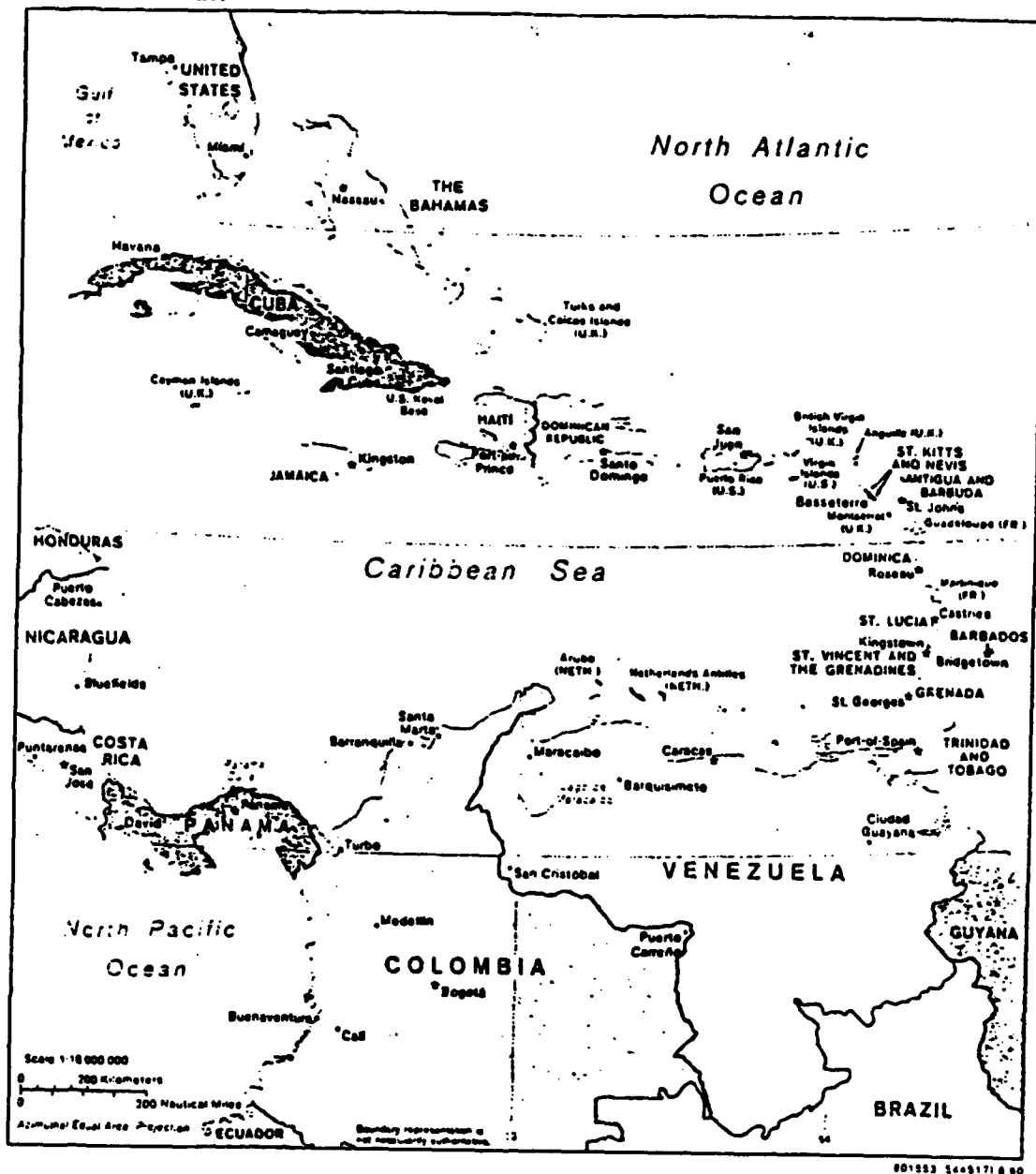
From the Sasebo homeport, The AOR can range on a 2000 mile arc from Vietnam, through northern Borneo, Celebes, and New Guinea islands continuing northward through Wake Island. The area would include the Philippines,

Spratly Islands, and the U.S. Trust territories of the Pacific Islands with the exception of the Marshall group.

The Guam homeport would allow the AOR to range a 2000 mile arc beginning at Hong Kong through northern Borneo, through Celebes Island, northern Timor, and the Northern tip of Australia. The arc continues through eastern Guadalcanal in the Solomon Islands northward, east of the Marshall Islands. This area also includes the Philippines and Spratly Islands plus the entire U.S. Trust Territories, New Guinea and the Solomon Islands. The area would not include the Asian mainland south of Hong Kong. (See figure 4, p 80.)

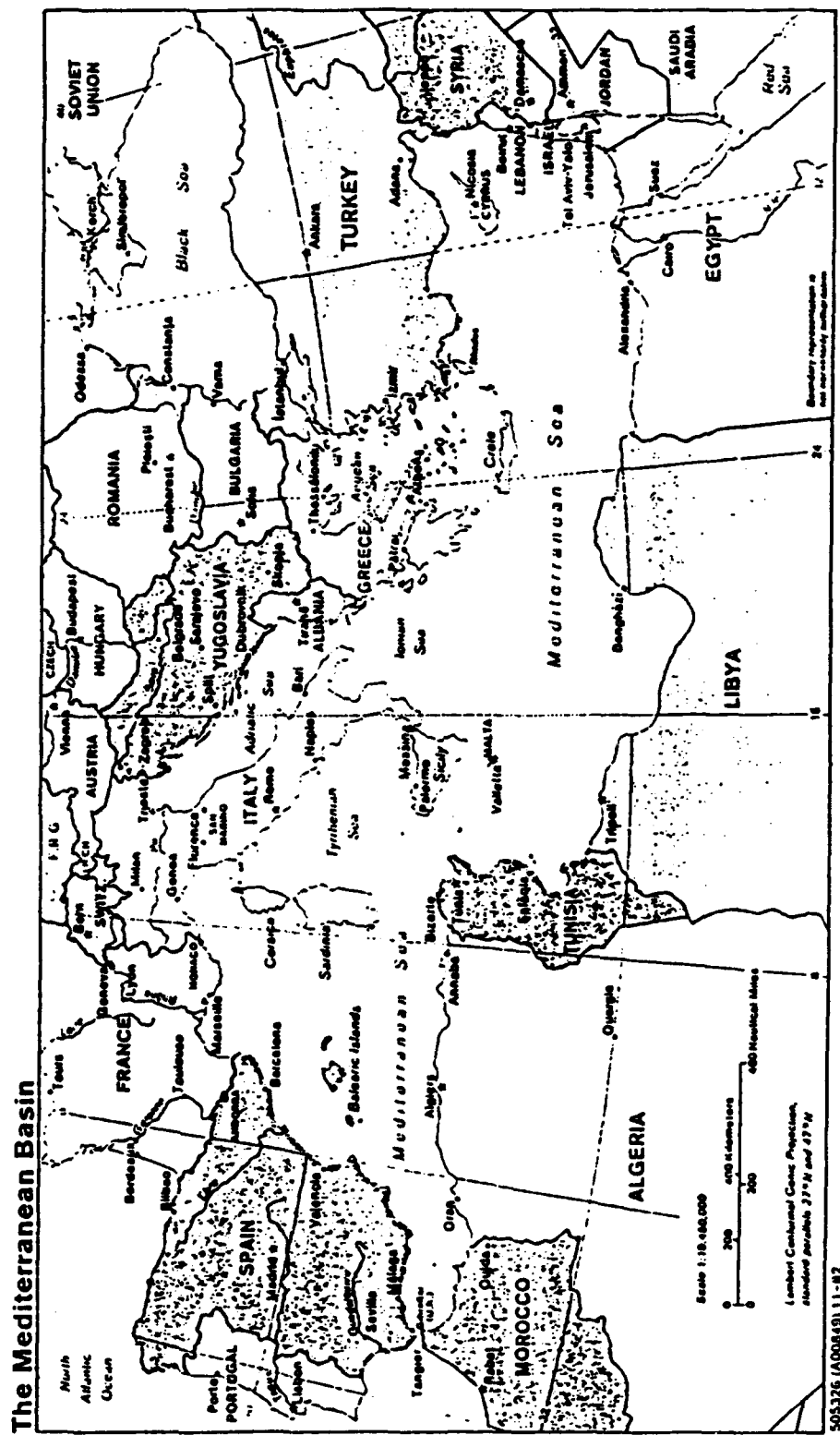
Considering the location of the proposed homeports and the AORs estimated range allowing for the airborne brigade's notification and deployment window, some risks must be recognized. Since there will not be an opportunity for a quick AOR deployment to support a short notice contingency in Africa, use of this sustainment method will require advanced planning. The potential for instability in Africa will have to be considered by the Commander in Chief European Command (CINCEUR) early in order to allow positioning of the AOR to provide timely support. Similarly, the Indian Ocean area will not have an AOR asset

The Caribbean



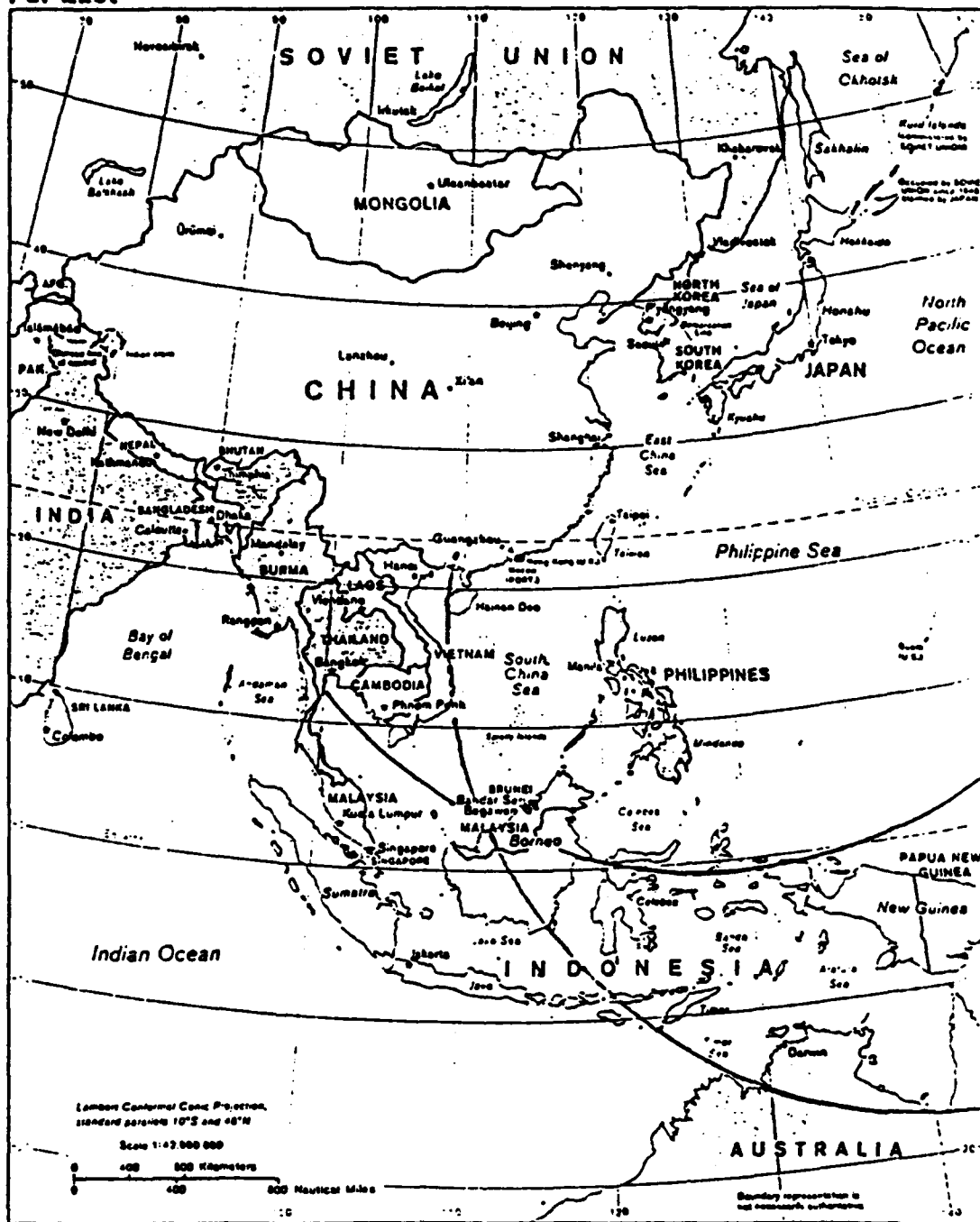
"Homeport Mayport Florida"

Figure 2



"Homeport Napels Italy"

Far East



"Homeport Sasebo, Japan or
Guan, MI"

Figure 4

within the 2000 mile envelope; the Commander in Chief Central Command (CINCCENT) will not have an AOR asset within his theater. The Commander in Chief Southern Command (CINCSOUTH) will be dependant on CINCLANT to provide the sustainment ship for contingencies within his theater.

Joint level transportation planning and feasibility analysis will need to incorporate the AOR sustainment concept. The purpose of transportation planning is to determine the gross strategic transportation feasibility of the CINC's OPLAN, and compare the subordinate commander's transportation requirements to the apportioned capacities and capabilities.²⁸ With the sustainment AOR's primary mission being support of the contingency operation, a portion of the CINC's requirements can now be sourced by the Navy. Because of the mobile nature of Navy assets, the Navy completes OPLAN sourcing only during time-sensitive planning.²⁹ The sustainment AOR will facilitate early identification of a mission targeted Navy asset for the CINC's operational and transportation planning.

Based on reaction time, the bench mark distance of 2000 miles can be extended, provided the CINC can provide enough notice to the AOR to enable early deployment to the area of the contingency. The limiting factors in choosing the AOR for sustainment of a contingency operation in an undeveloped theater are geography limitations and arrival

within 48 hours of the first element of the airborne brigade.

Doctrine

As chapter two indicates, sustainment doctrine for contingency operations is less than adequate. A joint sustainment doctrine tailored to the contingency operation in both the developed and undeveloped theaters is desperately required. This doctrine must address airlift, sealift, airdrop, and the sustainment AOR concept as separate but supporting entities. Recommended guidelines for the publication and format of the doctrine are JCS Pub 3-02, Joint Doctrine for Amphibious Operations and JCS Pub 5-00.2, Joint Task Force Planning. Both publications emphasize concept of operation, organization and relationships with other commands.

The Joint Low-intensity Conflict Project was established in 1985. The final report was released in 1986 and included contingency operations in the listing of low-intensity conflict activities. The report was synthesized into four themes: We do not understand low intensity conflict; we respond with no unity of effort; we execute activities poorly; and we lacked the ability to sustain operations.³⁰ The report continues to highlight deficiencies with:

Individual services and organizations lack procedures and doctrine to guide their efforts in the low-intensity conflict environment as tasked by the national command authority....the operational experience of those tasked to conduct operations in the low-intensity conflict environment shows conclusively that existing doctrine is inadequate. More is needed than amending doctrine developed for other forms of conflict.³¹

Doctrine for the undeveloped theater must break away from depending on host nation support and the assumptions that sufficient infrastructure will be available to support and sustain a contingency operation. The complexity and special requirements of sustaining operations in the undeveloped theater warrants the formulation of a single doctrinal reference that lays out in detail the assets, capabilities, and limitations of the Army CSS organization and those of the supporting services for a contingency operation or low-intensity conflict.

General Concept Scenarios

The choice for employment of the sustainment AOR will be scenario dependant. If the theater is mature, and the use of heavy forces is anticipated, traditional airlift and sealift may be the best option for sustainment support. If airborne forces have been identified to deploy and the theater is undeveloped, use of the sustainment AOR may be the economy of force sustainment option.

Risk Considerations

Geographic limitations may preclude use of any seaborne asset for force buildup or sustainment. The contingency operation must have a secure TMT and logistics helipad operation somewhere along the coastline in order for the AOR sustainment concept to be operational. Relatively secure airspace will be required to conduct the VERTREP operation, however, air supremacy is not necessary and air superiority is not hard requirement as long as air defense assets can command the area of the sustainment operation.

Mission Considerations

Historically, the ideal employment for the sustainment AOR would have been at Kismayu, Somalia. Operations in the area of this primitive and undeveloped port required amphibious support and logistics lines to the main port city of Mogadisho, which itself required extensive improvement by two naval construction battalions to operate with U.S. sealift and airlift assets.³² The AOR could have sustained an airborne brigade with essential items, POL, medical and dental facility, and limited field services without the financial investment in either port or the airport at Mogadisho. Urgent requirements could have been airdropped or airlanded by C-130 intra-theater air assets.

A potential scenario for use of the AOR is sustainment of an airborne force of a brigade or less in a

security or peacemaking role in the former Yugoslavia, Cambodia, or Angola.

Employment Considerations

For any contingency operation, the ship will require notification from the CINC in that theater by a warning order. If time allows, the ship will proceed to port and top off and adjust fuel load, restock the ship's provisions, and load any mission specific equipment, supplies or personnel that are identified and available. The ship would then proceed to the area of operations in support of the OPLAN at a speed determined to insure arrival at the desired time. Assuming that the airborne force has jumped into theater, the Ship's or Army helicopters would ferry AOR augmentation personnel at the earliest possible opportunity.

Army personnel on land would prepare the logistics helipad and TMT for operation. Shipboard, Army and ship's force personnel would activate the hospital and begin planning for the sustainment operation. Communications would be established with the contingency force commander and schedules arranged.

VERTREP and medical evacuation operations could begin well prior to anchoring and commencement of the fueling operations. The AOR should be providing full support including POL and potable water if required within six hours of anchoring. The Ship can proceed to sea for

UNREP by other Navy or MSC assets as required while continuing to support the brigade with everything except water and POL. Withdrawal would be an even simpler operation. The flexibility is only limited by the imagination of the logistics and operational planners.

Endnotes

1. Mark L. Hayes, "Sealift: The Achilles' Heel of our National Strategy," Marine Corps Gazette 76 No. 11 (November 1992): 72.

2. Ibid.

3. Ibid., p. 71.

4. Gilbert S. Harper, "Logistics in Grenada: Supporting No-Plan Wars," Parameters Vol. XX, No. 2 (June 1990): 59.

5. U.S. Army, Student Text 101-6, G1/G4 Battle Book (Fort Leavenworth: U.S. Army Command and General Staff College, 1992), 2-3 - 2-4.

6. Ibid., p. 2-1.

7. Nolan, "Medical Support in Grenada," 109.

8. U.S. Army, FM 8-10-13, Employment of the Mobil Army Surgical Hospital (Coordination Draft). (Fort Sam Houston: Academy of Health Sciences, 1991) p. 1-1.

9. Interview with Commander Michael L. Felmlly, Chief of Naval Operations (N865P4), Washington, D.C., 23 February 1993.

10. Interview with Captain Baron C. Nelson, Chief of Naval Operations (N7A), Washington, D.C., 09 January 1993.

11. John J. Bepko, "Sustaining the Forces: The Combat Logistics Problem in the 1990s and Beyond," 20 May 1991, Department of Operations, Naval War College, Newport, R.I.
12.

12. Ibid., p. 4-6.

13. U.S. Army, FM 90-26, 1-6.

14. Peppers, 278.

15. Polmar, Ships, 302.

16. U.S. Army, G1/G4 Battle Book, 2-4.

17. U.S. Army, FM 8-10-13. Employment of the Mobil Army Surgical Hospital (Coordination Draft). (Fort Sam Houston: Academy of Health Sciences, 1991). [The basis for my recommendation for the medical facility is predicated on the 30 bed MASH which is founded on the tactics, techniques, and procedures used by the U.S. Army for the employment of the Mobil Army Surgical Hospital.]
18. U.S. Army, Airborne Operations, 9-13.
19. Jane's Fighting Ships 1987-88, (London: Jane's publishing Company Limited, [1987]), pp. 790.
20. U.S. Army, Student Text 63-1. Airland Battle Sustainment Doctrine (Division and Corps) (Fort Leavenworth: USACGSC, June 1992), p. 1-15.
21. U.S. Army, Airborne Operations, 9-1.
22. Gideon C. Chambers, "Division Logistics Helipad Operations," Army Logistician Vol 16 No 3 (May-June 1983): 8.
23. U.S. Army, FM 10-67. Petroleum Supply in Theater of Operations (Washington, D.C.: Department of the Army, 1983), 3-15.
24. COMNAVFOR KOREA Soel Korea, "VERTREP ammunition Transfer," (Unclassified Naval Message 251305Z APR 91), 1.
25. Personal experiences of the author while serving in USS Mount Hood (AE-29) from 7 October 1982 to 1 March 1985 and 24 November 1989 to 15 May 1992.
26. U.S. Army, Airborne Operations, 8-13.
27. William L. Braddy, "Choosing the Best Means of Transportation," ALOG Vol 17 No 6 (November-December 1985): 19.
28. National Defense University, AFSC Pub 1. The Joint Staff Officer's Guide 1991 (Norfolk: Armed Forces Staff College, 1991), 6-62.
29. Ibid., p. 6-61.
30. Joint Low-intensity Conflict Project, Final Report, Executive Summary (Fort Monroe, VA: U.S. Army Training and Doctrine Command, 1986), 2.

31. Ibid., p. 6.

32. "Logistics will be tougher than those for gulf war," The Kansas City Star, 6 December 1992, sec. A, p. A-8.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

The purpose of this study was to examine whether the Navy's Combat Logistics Force (CLF) is capable of sustaining an Army airborne brigade contingency operation beyond the brigades traditional 48 hours of self sustainment capability. The other consideration for this study was the prospect for U.S. involvement in contingency operations in locations where the existing infrastructure is at best, austere. Conclusions were reached based on the relative merit of CLF employment given the mission of sustaining an airborne brigade in an undeveloped theater.

Retrenchment in the Army has required the strategic focus to change to power projection vice forward deployment. The objectives of both airlift and sealift have aimed toward supporting the primary national strategic interest of defending Western Europe; lift capabilities are designed toward this end. Current political conditions should forewarn military planners that current lift and sustainment capability based upon dated doctrine may not be adequate for forces operating in an undeveloped theater.

As the military budget declines, our commitments to contingency operations and non-traditional roles of the military in the third world grow. This thesis reveals a substantive need for a versatile and inexpensive way to sustain operations of the initial rapidly deployed airborne brigade, the lead element of a contingency operation, with class I, III, and V supplies, plus provide a surgical capability and some field services in an undeveloped theater. The joint logistics planner must be ever watchful for any effective method to sustain rapid deployment contingency forces operating in austere environments.

The Major Research Question

"Can the Navy's CLF be employed to extend the sustainment of a U.S. Army airborne brigade contingency operation in an undeveloped theater beyond the traditional 48 hours?"

An examination of the CLF was conducted in chapter two and further applied to the major research question in chapter four. After defining the CLF, its capabilities and missions were examined in order to determine if the Navy sustainment at sea mission of the CLF was adaptable to an Army sustainment role.

Mission commitments and future roles of the specific ship types comprising the CLF were examined. The examination included the Navy's sustainment at sea precepts

which were combined with future force structure projections. This assessment alleviated all CLF ships except the replenishment oiler (AOR) class for availability.

Sustainment support for the lead brigade involved in a contingency in an undeveloped theater is poorly addressed by Army doctrine. Sustainment for Army operations other than war depend heavily on airdrop resupply, host nation support (HNS), and versatility and improvisation demonstrated by the logistician. Joint doctrine directs that a unit's accompanying supplies be supported and replaced by: (1) pre-positioned war reserves in theater being moved by air or sea; or (2) providing sustaining supplies delivered via strategic airlift. Both options are only to fill a gap until a supply/sustainment pipeline is established and opened.

Specific sustainment requirements of essential items and casualty estimates for an airborne brigade in a contingency operation were determined using doctrine and texts provided at the Army Command and General Staff College. The requirements were compared against the current capabilities and missions of the CLF to answer the primary research question.

The AOR of the Navy's CLF can be employed to extend the sustainment of a U.S. Army airborne brigade contingency operation in an undeveloped theater beyond the traditional

48 hours. The AOR is the only CLF asset determined to be both available and suited for the Army airborne brigade sustainment role. Additionally, much of the AOR's peacetime Navy mission could be maintained if chosen for a primary role of Army force sustainment which further reinforced its selection.

Subordinate Question One

"What lessons learned from past contingency operations and base resupply operations involving CLF ships can be applied to form joint sustainment doctrine?"

Research into the use of CLF assets to support contingency operations proved to be unsuccessful. However, experience in using ships to support exercises and the use of amphibious ship's to alleviate Army surgical shortfalls were well documented. The practice of using the CLF for base resupply operations was applied in this study.

Ammunition (class V) resupply operations from CLF ships using VERTREP have proven to be very advantageous to the Navy. Applying these successes to an Army contingency scenario requires little or no modification. The characteristics of classes I, III, and V supplies being high-bulk and low-value items underscores the benefits which will be attained by CLF delivery in an undeveloped theater.

Exercises where fuel was provided by floating pipeline to an Army TMT have a documented history of

success. The concept is integrated into the LOTS approach to support and sustainment. Application of this ship-to-shore capability into the sustainment AOR further adds to the credibility of a CLF ashore sustainment concept.

Amphibious ships operating in support of Marines during Operation Urgent Fury in Grenada provided emergency care to Army personnel while their surgical facilities waited for airlift. Hospital ships contain significantly more capability than is required for the lead brigade or for a single brigade contingency operation and are not available during the initial phases of a contingency. The need for a surgical capability during contingency operations has been identified. The surgical support which was provided to the Army by Navy amphibious ships during Operation Urgent Fury should be appraised before formulating joint sustainment doctrine.

Lessons learned from past contingency operations provide a baseline for medical and surgical support principles but, fall short of providing adequate substance to formulate doctrine. Similarly, experience and lessons learned from exercises and base resupply operations involving ships are insufficient to establish doctrine but, could be applied to contingency exercises and simulations. The results of which can be used to form joint sustainment

doctrine that will be effective in sustaining Army forces in an undeveloped theater.

Subordinate Question Two

"What will be the ship's configuration and the pre determined load?"

After examining the current configuration and capabilities of the AOR in chapter two, it's ability to sustain and support an Army airborne brigade during a contingency operation is inadequate. Shortfalls in class V storage capacity, surgical and medical facilities, a mortuary, manning for field services, and troop berthing are deficient in the AOR as configured.

The modification which was introduced in chapter four answers all identified deficiencies and areas of projected shortfall. The new configuration outlined in chapter four allows for reasonable amounts of classes I, III, and V supply, provides a surgical capability that conforms to Army doctrine, and facilitates field service operations.

The AOR's load would be determined by the theater CINC and maintained by the ship in a caretaker status until Army sustainment is required. The advantage of the theater CINC determining the load has a twofold benefit: First, the determined contingency load is mandated to support the lead airborne brigade used for a crisis response given little or

no notice. Second, the theater CINC has the flexibility to adjust and target the load for missions supporting other non-traditional roles and operations other than war that do not require the sustainment of an airborne brigade.

The AOR's final configuration would be that of a modified replenishment oiler containing less UNREP capability and increased Army sustainment and support facilities. A pre-determined load would be dictated by the theater CINC and adjusted as required to support specific non-traditional operations.

Subordinate Question Three

"Taking into account the characteristics of Army contingency operations in an undeveloped theater, which scenarios will be suitable to employ Navy CLF support for sustainment?"

Geography plays the most important role in determining the applicable scenarios for employment of the AOR in sustaining an Army airborne brigade contingency operation. Sustainment using VERTREP and employment of an Army TMT requires that the operation be sustained from a coastal area. The example provided in chapter four for optimum employment of the sustainment AOR was Kismayu, Somalia during Operation Restore Hope. Sustainment throughout this operation was complicated by the undeveloped theater and was the first time since the initial deployment

to Vietnam that doctrinal shortfalls surfaced because of the austere environment.

Because of the nature of the AOR sustainment concept, the number of applicable scenarios increase as the infrastructure of the theater decreases. A brigade conducting operations in either a developed or undeveloped theater where there is coastal access are the prerequisites for determining whether sustainment via the AOR is viable.

Subordinate Question Four

"Can the CLF sustainment ship provide field services to the contingency operation and if so, what personnel augmentation is required?"

Scanty field services can be provided by the AOR without modification or augmentation. If the modifications addressed in chapter four and subordinate question two are completed, the AOR will contain ample facilities capable of providing field services.

AOR manning addressed in chapter four allows for laundry, water production, and food preparation facilities and personnel for the ship to be self-sustaining. Adding the requirements to provide a field kitchen's function, clothing exchange and bath, and mortuary services would over extend the abilities of the ship's crew. Further, these field service functions are not understood by Navy personnel and task accomplishment would not be fully realized.

To properly provide and support the field service function by the AOR, it is necessary to augment the ship's crew with Army personnel during operations or exercises. This augmentation will enable regular ship's facilities to operate 24 hours a day and provide manning for Army unique support required in a contingency operation, e.g. finance and mortuary services. Army professionals who are trained and experienced in providing field services and support will insure that the appropriate groundwork is available to the operation.

Subordinate Question Five

"Is it necessary to homeport the sustainment ship taking into account desired geographic coverage for the concept to be viable?"

Including the geographic considerations addressed in subordinate question three, the location of the homeport of the AOR will establish distances and scenarios that can be deemed reasonable for deliberate and crisis planning by the theater CINC. Strategic homeporting of the AOR will give the theater CINC his own contingency sustainment asset which he can quickly pre-position or stage without national level involvement or restricting USTRANSCOM strategic APF assets to an operation. The strategic homeporting within the CINC's theater will also provide him easy access to adjust the loadout which was addressed in subordinate question two.

Load flexibility combined with the CINC's ability to position his sustainment close to the expected contingency while remaining in international waters reduces many legal and security constraints and provides a "show of the flag" for deterrence. The AOR can provide sustainment quickly without the necessity of diplomatic requests for overflight permission or the need to urgently establishment of an intermediate staging base. Additionally, since the ship normally carries the contingency load, it can quickly depart port without a long loading periods pierside which could compromise the security of an operation.

It is necessary to strategically homeport the sustainment AOR within the theater considering the desired geographic coverage for the concept to be viable.

Conclusion

The study found that the United States Army is structuring itself as a power projection force. Forces of the XVIII Airborne Corps have the responsibility as the strategic crisis response force to deploy worldwide, fight on arrival, and win. To accomplish this, sustainment requirements are to be identified and provided by innovative logisticians.

There exists a void in Army sustainment doctrine and capability for the lead airborne brigade deployed to a contingency operation. The void in sustainment is most

prevalent between phases two, deployment/initial combat action or lodgment phase, and phase three, force buildup/combat operations or the stabilization phase in a phased contingency operation.

Phase three requires extensive airlift and sealift assets to provide and support heavy follow-on forces for subsequent operations. The void in logistic support is after the initial units, which were deployed in phase two, deplete their 48 hour basic load, and the completion of the phase three deployment and buildup of the follow-on forces.

The ability of the present force structure to sustain XVIII Airborne Corps' rapid deployment airborne units in an undeveloped theater during a contingency operation while simultaneously building forces is questionable. Further, exclusive use of airlift sustainment of a brigade strength contingency operation in an austere theater is not logical in a politically erratic world and fiscally restrained climate.

Using a modified AOR to logistically support an Army airborne brigade during certain contingency operations fills the sustainment void thereby solving a practical military problem effectively and inexpensively.

This study concludes that a modified AOR can fulfill the requirements of sustaining an airborne brigade required

by current joint doctrine as described in this chapter under the primary research question. The AOR will provide pre-positioned war reserves in theater being moved by air or sea, and wean the Army from dependance on airdrop resupply and HNS. The concept provides a theater CINC with on-call logistic support to a brigade contingency force in a developed or undeveloped theater using an asset that is already in the U.S. Navy inventory.

Recommendation for Further Study Issues

Costs

The cost of modification of an AOR was briefly addressed in chapter four using hospital ship conversions and 1984 cost figures as a baseline, estimating the percentage of work for the AOR modification, and using a ten percent discounting figure to arrive at the 1994 estimate of \$73.6 million. This method was adequate for the purposes of this thesis but, an actual engineering study and cost estimate by the Naval Sea Systems Command (NAVSEA) is required to determine actual cost figures for the AOR modifications.

Command and Control

During interviews and conversations with senior Navy officers with CLF backgrounds, one specific question consistently surfaced; "whose going to own the ship?" One

option is USTRANSCOM or their subordinate the Military Sealift Command (MSC) which staff their ships with civilians and remove all weapon systems. Consequences of this assignment would be in the peacetime employment of the AOR in the role of fleet oiler and in the contingency role of Army sustainment. During peacetime operations, the Navy would force the Navy to schedule fueling services through USTRANSCOM or MSC in advance. This arrangement would create opposition in Navy operational circles where the CLF has always been reactive to last minute requirements. During contingencies, the AOR would have no self defense capability and possibly require escort.

Another ownership option is to assign the AOR to the Navy surface type commander (TYCOM). The TYCOM is the administrative commander for surface ships within a given fleet. Under this arrangement, Navy operational funds would be required to support the AOR. With reductions in force structure as the order of the day, the Navy would not rally to the idea of retaining a working logistics ship over a glamorous combatant.

A more viable option is passing COCOM of the AOR to the theater CINC who retains command of the AOR yet delegates operational control of the ship to the Naval Component Commander or numbered fleet commander within the CINC's theater. Considering the subordinate questions

addressed in this study, and the flexibility that the Sustainment AOR will give the CINC, control of the ship may be best placed in his hands. Ideally, this question must be resolved before the concept is applied.

Sustainment Doctrine

Aside from whether or not a sustainment AOR is considered for inclusion in contingency planning, the need for joint sustainment doctrine for operations specifically in undeveloped theaters must be satisfied. Operation Restore Hope gave the military a taste of the undeveloped theater. The absence of armed resistance made the near impossible tasks of sustainment and sealift support only difficult.

A power projection Army must face the realities of deployment to an undeveloped theater. Joint doctrine must address operations, support, and sustainment in undeveloped theaters with concrete guidance and recommendations.

Specific joint and Army sustainment doctrine should be developed and focused toward the undeveloped theater. Lessons learned from Operations Restore Hope and Urgent Fury will provide historical guidance for the formulation of the doctrine. These lessons learned combined with combat usage estimates should provide doctrine writers with reliable statistics and examples with which to produce valuable

sustainment doctrine for contingency operations in an undeveloped theater.

Closing Comments

The likelihood of fighting a long and protracted European conflict with heavy divisions no longer commands the continuous attention of military planners. The principal concern of the post Soviet planners is the possibility of United States involvement in a myriad of contingency operations and low intensity conflicts. Additionally, as the economic gap widens between the haves and have nots of the world, instability will become prevalent. Short duration contingency operations in the undeveloped theater as was encountered in Somalia will become even more characteristic of U.S. military operations as a whole.

In each of the major wars of this century-- World War I, World War II, Korea, and Vietnam-- the US has been unprepared. Logistically, we lacked realistic planning and a system-in-being for immediately deploying and sustaining combat power. These problems were costly and dangerous.¹

The sustainment AOR provides a viable solution to an acknowledged problem. The surgical capability will save lives; the logistics capability will reduce dependance on airdrop resupply and extensive infrastructure investment in a foreign country. In conclusion, the AOR can provide the

Army with a credible sustainment strategy for an airborne
brigade contingency operation in an undeveloped theater.

Endnotes

1. Benjamin L. Dilla, "Logistics Support Limitations in the Vietnam War: Lessons For Today's Logisticians," Air Force Journal of Logistics Vol. XIV No. 4 (Fall 1990): 35.

BIBLIOGRAPHY

Books

- Beakey, Dan, J. Logistics Over the Shore Do We Need It?, Monograph Series, no. 82-6. Washington, D.C.: National Defense University Press, 1982.
- Jane's Fighting Ships 1987-88, London: Jane's publishing Company Limited, [1987].
- Peppers, Jerome G Jr. History of United States Military Logistics 1935-1985. Huntsville: Logistics Education Foundation Publishing, 1988.
- Polmar, Norman. Ships and Aircraft of the U.S. Fleet. 14th ed. Annapolis: Naval Institute Press, 1987.
- Wade, Gary, H. Rapid Deployment Logistics: Lebanon, 1958. Research Survey, no. 3. Fort Leavenworth: Army Command and General Staff College, Combat Studies Institute, 1984.

Periodicals and Articles

- Braddy, William L. "Choosing the Best Means of Transportation." ALOG Vol. 17, No. 6 (November-December 1985): 17-19.
- Chambers, Gideon C. "Division Logistics Helipad Operations." Army Logistician Vol. 16 No. 3 (May-June 1983): 6-8.
- Clingman, Fred. "Medical Logistics in Vietnam." Air Force Journal of Logistics Vol. XIV No. 3 (Summer 1990): 13-22.
- Dilla, Benjamin L. "Logistics Support Limitations in the Vietnam War: Lessons For Today's Logisticians." Air Force Journal of Logistics Vol. XIV No. 4 (Fall 1990): 35-37.

- Dodd, Donald S. "Class I Supply During Team Spirit '83." Army Logistician vol. 16 No. 3 (May-June 1983): 26-27.
- Elam, Fred E. and Mark Henderson. "The Army's Strategic Mobility Plan." Army Logistician PB 700-92-3 (May-June 1992): 2-6.
- Eschel, David. "The U.S. Army Light Division: Right or Wrong?" National Defense Vol. LXXI No. 428 (May/June 1987): 50-64.
- Gourdin, Kent N. and Robert E. Trempe. "Contingency Transportation in a Changing World: Meeting the Challenge." Journal of the Society of Logistic Engineers Vol 26 (Spring 1992): 9-15.
- Harkins, Arthur L. and Michael S. Proaps. "Helicopters-Prime Cargo Movers." Army Logistician Vol. 15 No. 3 (May-June 1983): 36-38.
- Harper, Gilbert S. "Logistics in Grenada: Supporting No-Plan Wars." Parameters Vol. XX, No. 2 (June 1990): 50-63.
- Hayes, Mark L. "Sealift: The Achilles' Heel of Our National Strategy." Marine Corps Gazette Vol. 76 No. 11 (November 1992): 71-80.
- Hogg, James R. "Reinforcing Crisis Areas." NATO's Sixteen Nations Vol. 35 No. 8 (December 1990-January 1991): 12-16.
- Johnson, Tina G. and Michael A. White. "JLOTS Tests Fuel Delivery Systems." Army Logistician PB 700-93-2 (March-April 1993): 22-25.
- Keller, Robert H. IV. "Military Logistics After Gorbachev: Tomorrow's Challenges." Air Force Journal of Logistics Vol. XIII No. 4 (Fall 1989): 16-24.
- Kuntz, John D. "Dismantling the Pipeline-an Introduction to Light Infantry Logistics." Marine Corps Gazette Vol. 74 No. 6 (June 1990): 59-61.
- Leedy, David B. "Firsts for the Third." Army Logistician PB 700-87-3 (Test) (July-August 1987): 10-13.

- Little, Allan G., and James E. Chambers. "Creative Logistics in Costa Rica." Army Logistician PB 700-88-1 (January-February 1988): 8-13.
- "Logistics will be tougher than those for gulf war." The Kansas City Star, 6 December 1992, sec. A, p. A-8.
- Luck, Gary E. "The XVIII Airborne Corps: Puttin' Power on the Ground." Military Review Vol. LXXII No. 4 (April 1992): 2-13.
- Malcom, Joseph A. "LAO's Role in Just Cause: A CONUS Perspective." Army Logistician PB 700-90-4 (July-August 1990): 6-9.
- Martinous, William P. "Containerized Ammunition-Ready or Not?" Army Logistician Vol. 14 No. 2 (March-April 1982): 18-21.
- Montero, Mario F. "Supporting Remote Operations." Army Logistician Vol. 16 No. 3 (May-June 1984): 2-5.
- Nolan, David L. "Airborne Tactical Medical Support in Grenada." Military Medicine 155 (March 1990): 104-111.
- Ross, Jimmy D. "Focusing Logistics for the Future." Military Review no. 9 (September 1992): 48-55.
- Silverstein, David S. "Preparing to Win Low Intensity Conflicts." National Defense Vol. LXXV No. 463 (December 1990): 26-29.
- "Small Wars to Shape U.S. Military." Baltimore Sun, 2 December 1992, p. 1.
- "Supporting Just Cause." Army Logistician PB 700-90-4 (July-August 1990): 2-5.
- Wells, George W. Jr. "The Business of Airdrop Resupply." Army Logistician (September-October 1990): 8-11.
- White, Thomas. "Operation Just Cause: How DLA Supported the Troops in Panama." Demensions (February 1990): 6-11.
- Wullenjohn, Chuck. "Services Cooperate in LOTS Operation." Army Logistician PB 700-87-3 (Test) (July-August 1987): 14-16.

Government Documents

COMNAVFORKOREA, Soel Korea. "VERTREP ammunition Transfer."
Unclassified Naval Message 251305Z APR 91.

Joint Chiefs of Staff. JCS PUB 3-0, Doctrine for Unified and Joint Operations (Test Pub). Washington, D.C.: Joint Chiefs of Staff, January, 1990.

Joint Chiefs of Staff. JCS PUB 3-02, Joint Doctrine for Amphibious Operations. Washington, D.C.: Joint Chiefs of Staff, 1 November 1986.

Joint Chiefs of Staff. JOINT TEST PUB 5-0, Doctrine for Planning Joint Operations. Washington, D.C.: Joint Chiefs of Staff, 26 July 1986.

Military Traffic Management Command. MTMC-PAM-55-3, Barge-Ship Systems: Description, Guidance, and Transporting of Military Cargo. Washington, D.C.: Headquarters, Military Traffic Management Command, 01 June 1977.

National Defense University. AFSC Pub 1, The Joint Staff Officer's Guide 1991. Norfolk, VA: Armed Forces Staff College, 1991.

U.S. Army. FM 8-10-13, Employment of the Mobil Army Surgical Hospital (Coordination Draft). Fort Sam Houston: Academy of Health Sciences, October 1991.

U.S. Army. FM 10-67, Petroleum Supply in Theater of Operations. Washington, D.C.: Department of the Army, 1983.

U.S. Army. FM 10-70-1, Petroleum Reference Data. Washington, D.C.: Headquarters, Department of the Army, 27 December 1983.

U.S. Army. FM 55-1, Army Transportation Services in a Theater of Operations. Washington, D.C.: Headquarters, Department of the Army, 30 November 1984.

U.S. Army. FM 55-15, Transportation Reference Data. Washington, D.C.: Headquarters, Department of the Army, 09 June 1986.

- U.S. Army. FM 55-50, Army Water Transport Operations. Washington, D.C.: Headquarters, Department of the Army, 07 June 1985.
- U.S. Army. FM 55-60, Army Terminal Operations. Washington, D.C.: Headquarters, Department of the Army, 18 May 1987.
- U.S. Army. FM 63-2-1, Division Support Command Light Infantry, Airborne, and Air Assault Divisions. Washington, D.C.: Headquarters, Department of the Army, 16 November 1992.
- U.S. Army. FM 71-100, Division Operations. Washington, D.C.: Headquarters, Department of the Army, 1990.
- U.S. Army. FM 90-26, Airborne Operations. Washington, D.C.: Headquarters, Department of the Army, 1990.
- U.S. Army. FM 100-5, Operations (Final Draft). Washington, D.C.: Headquarters, Department of the Army, 19 January 1993.
- U.S. Army. FM 100-15, Corps Operations. Washington, D.C.: Headquarters, Department of the Army, 13 September 1989.
- U.S. Army. FM 100-17, Mobilization, Deployment, Redeployment, Demobilization. Washington, D.C.: Headquarters, Department of the Army, 1992.
- U.S. Army. FM 100-20, Military Operations in Low Intensity Conflict. Washington, D.C.: Headquarters, Department of the Army and the Air Force, 05 December 1990.
- U.S. Army, Student Text 63-1, AirLand Battle Sustainment Doctrine (Division and Corps). Fort Leavenworth: USACGSC, June 1992.
- U.S. Army, Student Text 101-6, G1/G4 Battle Book. Fort Leavenworth: USACGSC, June 1992.
- U.S. Army Training and Doctrine Command. Joint Low-Intensity Conflict project Final Report. Fort Monroe, Va.: U.S. Army Training and Doctrine Command, 1 August 1986. Executive Summary.

U.S. Army Training and Doctrine Command. Joint Low-Intensity Conflict project Final Report. 2 Vols. Fort Monroe, Va.: U.S. Army Training and Doctrine Command, 1 August 1986. Vol. 1: Analytical Review of Low-Intensity Conflict.

U.S. Navy. NWP 42 (rev.1), Shipboard Helicopter Operating Procedures. Washington, D.C.: Department of the Navy, 1991.

Unpublished Materials

Bepko, John J. "Sustaining the Forces: The Combat Logistics Problem in the 1990s and Beyond." Paper submitted to the Department of Operations, Naval War College, Newport, R.I., 20 May 1991.

Bessent, Elmo V. "U.S. Strategic Sealift Study Project." USAWC Military Studies Program Paper, U.S. Army War College, Carlisle Barracks, PA., 05 April 1991.

Bright, Carl T., and Sharon R. Hale. "Strategic Sealift for Desert Shield Not a Blue Print for the Future." Paper submitted to the Department of Operations, Naval War College, Newport, R.I., 21 June 1991.

David Taylor Research Center. "Evaluation of JLOTS Lessons Learned in Solid Shield 89." Bethesda, MD.: September 1989.

"... From the Sea, Preparing the Naval Service for the 21st Century." Navy and Marine Corps White paper, September 1992.

Germann, Lewis A. "Combat Service Support and the Total Force." Masters Thesis, Air Force Institute of Technology, Air University, 1991.

Hargis, Tom E. "Shortage of Sealift to Meet Army Requirements." Professional Military Comptroller Course Student Report, Air University, Maxwell AFB, AL., 1991.

Hauser, John R. Jr. "The Aerocrane in LOTS Operations." MMAS. Thesis, U.S. Army Command and General Staff College, 1976.

- Joint Strategy Review Non-Traditional Roles Study Group,
Strategy Division (J-5) "Non-Traditional Roles
(NTR)," information paper presented to the Joint
Chiefs of Staff, Washington, D.C., 17 March 1993.
- Kieselbach, Kent R. "Army LIC Doctrine: Naval Roles."
USAWC Military Studies Program Paper, U.S. Army War
College, Carlisle, PA., 15 March 1991.
- Mitchell, Mark L. "Logistics in Naval Warfare." Annotated
Bibliography, Naval Postgraduate School, Monterey,
CA., 23 September 1988.
- Nelson, Baron C. "Combat Logistics Force Into the Twenty-
First Century." White paper presented to the
Commander, Sixth Fleet, Naples, Italy, 29 April 1991.
- Opsal, Peter B. "Low Intensity Conflict From a Maritime
Perspective." USAWC Military Studies Program Paper,
U.S. Army War College, Carlisle, PA., 05 April 1991.
- Sanders, Robert E. "The Combat Logistics Force: The Time
is Now!" Paper submitted to the Department of Naval
Operations, Naval War College, Newport, R.I., 14 May
1990.
- Stockman, Stephen C. "Petroleum Support---Light Infantry
Division." Research Study Presented to the Florida
Institute of Technology, June 1990.

Other Sources

- Felmly, Michael L. Chief of Naval Operations (N865P4),
Washington, D.C. Interview, 23 February 1993.
- Hodor, Brian M. USS Mauna Kea (AE-22), Fort Leavenworth,
Kansas. Interview, 12 December 1992.
- Nelson, Baron, C. Chief of Naval Operations (N7A),
Washington, D.C. Interview, 09 January 1993.

INITIAL DISTRIBUTION LIST

1. Combined Arms Research Library
U.S. Army Command and General Staff College
Fort Leavenworth, KS 66027-6900
2. Defense Technical Information Center
Cameron Station
Alexandria, VA 22314
3. Naval Postgraduate School
Monterey, CA 93943-5000
4. Naval War College Library
Hewitt Hall
U.S. Naval War College
Newport, RI 02841-5010
5. CAPT Thomas F. Cleverdon, USN
Navy Section
USACGSC
Fort Leavenworth, KS 66027-6900
6. LTC John C. Goetz
Department of Sustainment and Resourcing Operations
USACGSC
Fort Leavenworth, KS 66027-6900
7. Dr. Rebecca Campbell
Department of Academic Operations
USACGSC
Fort Leavenworth, KS 66027-6900